STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 207134

TO: Jennifer Cho
Location: rem/5C15/5C18
Art Unit: 1621
Tuesday, January 09, 2007

Case Serial Number: 10/530572

From: Paul Schulwitz
Location: EIC 1600
REM-1A65
Phone: 571-272-2527

Paul.schulwitz@uspto.gov

Search Notes

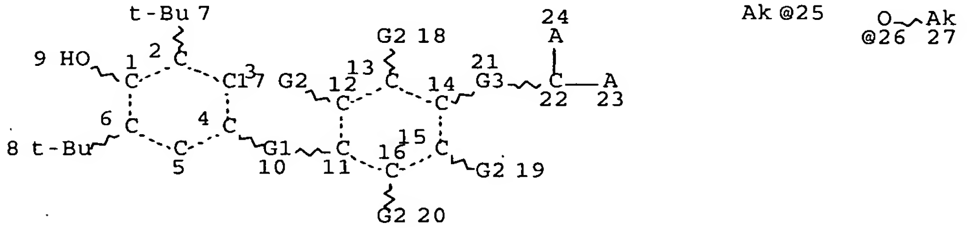
Examiner Cho,

Please review the attached search results.
If you have any questions or if you would like to refine the search query, please feel free to contact me at any time.

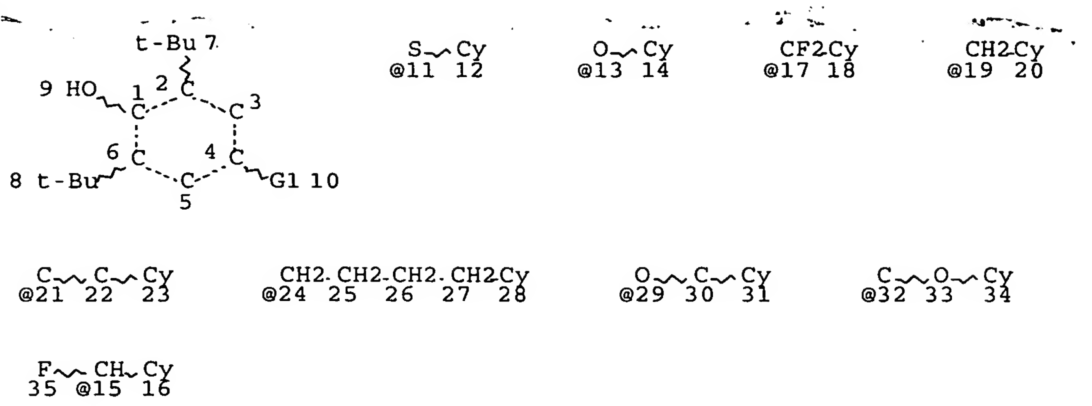
Thank you for using STIC search services!

Paul Schulwitz
Technical Information Specialist
REM-1A65
571-272-2527

```
=> fil hcap
FILE 'HCAPLUS' ENTERED AT 17:35:03 ON 29 DEC 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)


Copyright of the articles to which records in this database refer is
held by the publishers listed in the PUBLISHER (PB) field (available
for records published or updated in Chemical Abstracts after December
26, 1996), unless otherwise indicated in the original publications.
The CA Lexicon is the copyrighted intellectual property of the
the American Chemical Society and is provided to assist you in searching
databases on STN.  Any dissemination, distribution, copying, or storing
of this information, without the prior written consent of CAS, is
strictly prohibited.

FILE COVERS 1907 - 29 Dec 2006  VOL 146 ISS 2
FILE LAST UPDATED: 28 Dec 2006  (20061228/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d que l104
L20            STR
```



```
REP G1=(0-15) A
VAR G2=H/X/25/26
REP G3=(0-10) A
NODE ATTRIBUTES:
CONNECT IS M3   RC AT  14
CONNECT IS E1   RC AT  25
CONNECT IS E1   RC AT  27
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  27

STEREO ATTRIBUTES: NONE
L22         377 SEA FILE=REGISTRY SSS FUL L20
L25             STR
```

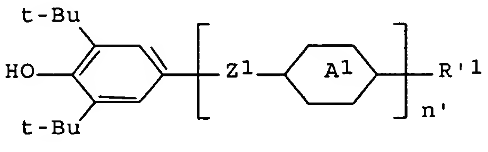


```
VAR G1=CY/11/13/17/19/21/24/29/32/15
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  35

STEREO ATTRIBUTES: NONE
L28          76 SEA FILE=REGISTRY SUB=L22 SSS FUL L25
L33           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  4221-80-1
L34          75 SEA FILE=REGISTRY ABB=ON  PLU=ON  L28 NOT L33
L37           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  35439-93-1
L38          74 SEA FILE=REGISTRY ABB=ON  PLU=ON  L34 NOT L37
L42           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L38 AND C57H77NO8/MF
L43          73 SEA FILE=REGISTRY ABB=ON  PLU=ON  L38 NOT L42
L45           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L43 AND C25H26N2O3/MF
L46          72 SEA FILE=REGISTRY ABB=ON  PLU=ON  L43 NOT L45
L47           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L46 AND C47H71NO3/MF
L48          71 SEA FILE=REGISTRY ABB=ON  PLU=ON  L46 NOT L47
L49           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L48 AND C32H48O3/MF
L50          70 SEA FILE=REGISTRY ABB=ON  PLU=ON  L48 NOT L49
L51           4 SEA FILE=REGISTRY ABB=ON  PLU=ON  L50 AND C29H42O3/MF
L52          66 SEA FILE=REGISTRY ABB=ON  PLU=ON  L50 NOT L51
L54           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L52 AND C23H34NO3P/MF
L55          64 SEA FILE=REGISTRY ABB=ON  PLU=ON  L52 NOT L54
L56           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L55 AND C38H59NO4/MF
L57          63 SEA FILE=REGISTRY ABB=ON  PLU=ON  L55 NOT L56
L58           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L57 AND NI/ELS
L59          62 SEA FILE=REGISTRY ABB=ON  PLU=ON  L57 NOT L58
L60           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L59 AND IDS/CI
L61          61 SEA FILE=REGISTRY ABB=ON  PLU=ON  L59 NOT L60
L62           3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L61 AND C31H46O3/MF
L63          58 SEA FILE=REGISTRY ABB=ON  PLU=ON  L61 NOT L62
L64           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L63 AND C35H52O5/MF
L65          57 SEA FILE=REGISTRY ABB=ON  PLU=ON  L63 NOT L64
L66           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L65 AND C26H36O3/MF
L67          56 SEA FILE=REGISTRY ABB=ON  PLU=ON  L65 NOT L66
L68           5 SEA FILE=REGISTRY ABB=ON  PLU=ON  L67 AND C30H44O3/MF
L69           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DI
                METHYLETHYL)-4-HYDROXY-, 2-METHYL-4,6-BIS(1-METHYLPROPYL)PHENYL
                 ESTER"/CN
```

```
L70           51 SEA FILE=REGISTRY ABB=ON  PLU=ON  L67 NOT L68
L71           52 SEA FILE=REGISTRY ABB=ON  PLU=ON  L69 OR L70
L72            3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L52 AND C>90
L73           49 SEA FILE=REGISTRY ABB=ON  PLU=ON  L71 NOT L72
L74            3 SEA FILE=REGISTRY ABB=ON  PLU=ON  L73 AND C33H50O3/MF
L75            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DI
                 METHYLETHYL)-4-HYDROXY-, 2,4,6-TRIS(1-METHYLPROPYL)PHENYL
                 ESTER"/CN
L76           46 SEA FILE=REGISTRY ABB=ON  PLU=ON  L73 NOT L74
L77           47 SEA FILE=REGISTRY ABB=ON  PLU=ON  L75 OR L76
L78            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L77 AND C25H34O3/MF
L79           46 SEA FILE=REGISTRY ABB=ON  PLU=ON  L77 NOT L78
L80            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L79 AND C24H26F3NO/MF
L81           45 SEA FILE=REGISTRY ABB=ON  PLU=ON  L79 NOT L80
L82            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L81 AND C24H26F3NO2/MF
L83           44 SEA FILE=REGISTRY ABB=ON  PLU=ON  L81 NOT L82
L84            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L83 AND C29H40O5/MF
L85           43 SEA FILE=REGISTRY ABB=ON  PLU=ON  L83 NOT L84
L86            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L85 AND C23H32O/MF
L87           42 SEA FILE=REGISTRY ABB=ON  PLU=ON  L85 NOT L86
L88            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L87 AND MN/ELS
L89           41 SEA FILE=REGISTRY ABB=ON  PLU=ON  L87 NOT L88
L90            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L89 AND C24H34O2/MF
L91           40 SEA FILE=REGISTRY ABB=ON  PLU=ON  L89 NOT L90
L92            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L91 AND C28H42O2/MF
L93           39 SEA FILE=REGISTRY ABB=ON  PLU=ON  L91 NOT L92
L94            2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L93 AND TI/ELS
L95           37 SEA FILE=REGISTRY ABB=ON  PLU=ON  L93 NOT L94
L96            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L95 AND C28H38O5/MF
L97           36 SEA FILE=REGISTRY ABB=ON  PLU=ON  L95 NOT L96
L98            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L97 AND C21H25F3O/MF
L99           35 SEA FILE=REGISTRY ABB=ON  PLU=ON  L97 NOT L98
L100          33 SEA FILE=REGISTRY ABB=ON  PLU=ON  L99 NOT C27H38O3/MF
L102           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DI
                 METHYLETHYL)-4-HYDROXY-, 2,6-DIMETHYL-4-(1-METHYLPROPYL)PHENYL
                 ESTER"/CN
L103          34 SEA FILE=REGISTRY ABB=ON  PLU=ON  L102 OR L100
L104          24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L103


=> d l104 ibib abs ed hitstr tot

L104 ANSWER 1 OF 24  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2004:307331  HCAPLUS  Full-text
DOCUMENT NUMBER:          140:347642
TITLE:                    Chiral phenol derivative, liquid crystal medium
                          containing the same, preparation of the liquid crystal
                          medium and electrooptical liquid crystal display
INVENTOR(S):              Reiffenrath, Volker; Heckmeier, Michael
PATENT ASSIGNEE(S):       Merck Patent GmbH, Germany
SOURCE:                   Ger. Offen., 42 pp.
                          CODEN: GWXXBX
DOCUMENT TYPE:            Patent
LANGUAGE:                 German
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE          APPLICATION NO.         DATE
     ---------------     ----    --------      --------------------    --------
     DE 10246657          A1     20040415      DE 2002-10246657        20021007
```

```
     WO 2004033406          A1     20040422    WO 2003-EP10398        20030918
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
             PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
             TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
             FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     AU 2003283251          A1     20040504    AU 2003-283251         20030918
     EP 1549599             A1     20050706    EP 2003-775161         20030918
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     JP 2006502205          T      20060119    JP 2004-542358         20030918
     US 2006011888          A1     20060119    US 2005-530572         20050407
PRIORITY APPLN. INFO.:                         DE 2002-10246657    A  20021007
                                               WO 2003-EP10398     W  20030918
OTHER SOURCE(S):            MARPAT 140:347642
```

GI



I

AB The invention relates to a chiral phenol derivative represented by I (R*1 = chiral group; Z1 = -CH2CH2-, -CH:CH-, etc.; A1 = trans-1,4-cyclohexylene, 1,4-cyclohexenylene, etc.; n1 = 1-3) and a nematic liquid crystal mixture containing the chiral phenol derivative as a cholesteric phase inducing chiral dopant and/or stabilizer. The chiral phenol derivative was synthesized and the nematic liquid crystal mixture was prepared

ED Entered STN: 15 Apr 2004

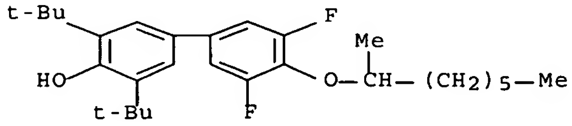
IT *679436-59-0P*

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(synthesis of chiral phenol derivative as cholesteric phase inducing dopant and stabilizer in nematic liquid crystal mixture suitable for liquid crystal display)

RN 679436-59-0 HCAPLUS

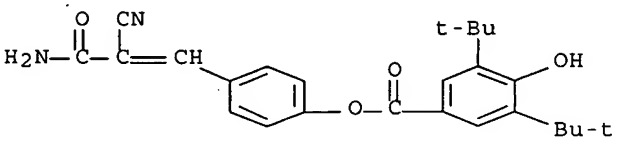
CN [1,1'-Biphenyl]-4-ol, 3,5-bis(1,1-dimethylethyl)-3',5'-difluoro-4'-[(1-methylheptyl)oxy]- (9CI) (CA INDEX NAME)



L104 ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:198803 HCAPLUS Full-text
DOCUMENT NUMBER: 128:217352
TITLE: Synthesis and biological activity of tyrosine protein kinase inhibitors
AUTHOR(S): Pan, Shuhua; Guo, Zongru; Liang, Xiaotian
CORPORATE SOURCE: Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, 100050, Peop. Rep. China
SOURCE: Yaoxue Xuebao (1997), 32(7), 515-523
CODEN: YHHPAL; ISSN: 0513-4870
PUBLISHER: Chinese Academy of Medical Sciences, Institute of Materia Media
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Four classes of 25 tyrosine protein kinase (TPK) inhibitors were designed and synthesized. Inhibiting effects of synthesized compds. on TPK of HL-60 leukemia cell were tested using 32P-ATP method, and some of them exhibited evident inhibitory activities. Their structure-activity relationship were similar to that of TPK inhibitors reported in literatures. Inhibiting effects of synthesized. compds. on TPK of normal rat spleen cell were also tested using ELISA method, and their SAR were different from that using 32P-ATP method.

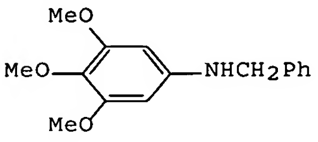
ED Entered STN: 08 Apr 1998
IT *204380-77-8P*
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and biol. activity of tyrosine protein kinase inhibitors)
RN 204380-77-8 HCAPLUS
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 4-(3-amino-2-cyano-3-oxo-1-propenyl)phenyl ester (9CI) (CA INDEX NAME)



L104 ANSWER 3 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:128356 HCAPLUS Full-text
DOCUMENT NUMBER: 116:128356
TITLE: Preparation of aniline derivatives as low-density lipoprotein inhibitors
INVENTOR(S): Kato, Yasuyuki; Tamura, Kunio; Ohba, Yasuhiro; Kawanabe, Yoshiki; Shinshi, Osamu
PATENT ASSIGNEE(S): Chugai Pharmaceutical Co., Ltd., Japan
SOURCE: PCT Int. Appl., 110 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

```
     PATENT NO.          KIND    DATE          APPLICATION NO.        DATE
     ---------------     ----    --------      --------------------   --------
     WO 9111994           A1     19910822      WO 1991-JP179          19910214
         W:  AT, AU, BB, BG, BR, CA, CH, DE, DK, ES, FI, GB, HU, JP, KR, LK,
             LU, MC, MG, MW, NL, NO, PL, RO, SD, SE, SU, US
         RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, DK, ES, FR, GA, GB, GR, IT,
             LU, ML, MR, NL, SE, SN, TD, TG
     CA 2076012           A1     19910815      CA 1991-2076012        19910214
     AU 9173173           A      19910903      AU 1991-73173          19910214
     ZA 9101101           A      19911127      ZA 1991-1101           19910214
     EP 515684            A1     19921202      EP 1991-904623         19910214
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE
PRIORITY APPLN. INFO.:                         JP 1990-33545       A  19900214
                                               WO 1991-JP179       A  19910214
OTHER SOURCE(S):         MARPAT 116:128356
```

GI



I

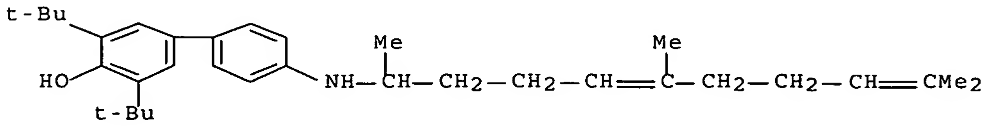
AB Aniline derivs., e.g., I, useful in treating arteriosclerosis, peptic ulcer, cancer, ischemic organ disease, inflammation, and pulmonary silicosis, are prepared PhCH2Br (6.0 mL) and 7.5 mL DBU were added to a solution of 9.16 g 3,4,5-(MeO)3C6H2NH2 in DMF with stirring to give 6.52 g I, which showed 33% inhibition of thiobarbituric acid reactive substances (a measure of antioxidn. activity) at 10-5M. Also prepared were 214 addnl. aniline derivs.

ED Entered STN: 03 Apr 1992

IT *138299-43-1P 138299-44-2P*
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation of, as drug)

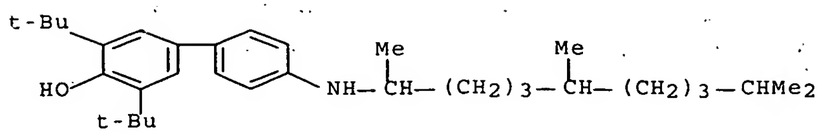
RN 138299-43-1 HCAPLUS

CN [1,1'-Biphenyl]-4-ol, 3,5-bis(1,1-dimethylethyl)-4'-[(1,5,9-trimethyl-4,8-decadienyl)amino]- (9CI) (CA INDEX NAME)

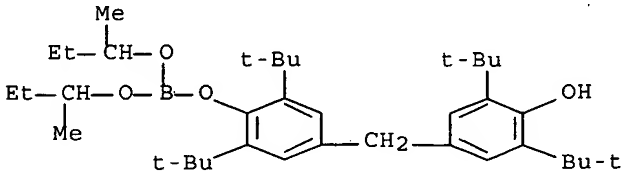


RN 138299-44-2 HCAPLUS

CN [1,1'-Biphenyl]-4-ol, 3,5-bis(1,1-dimethylethyl)-4'-[(1,5,9-trimethyldecyl)amino]- (9CI) (CA INDEX NAME)



```
L104 ANSWER 4 OF 24  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         1990:575391  HCAPLUS  Full-text
DOCUMENT NUMBER:          113:175391
TITLE:                    Haze-free boronated antioxidant
INVENTOR(S):              Wright, William E.; Davis, Bryan T.; Matteson, Donald
                          S.; Knapp, Gordon G.
PATENT ASSIGNEE(S):       Ethyl Corp., USA
SOURCE:                   U.S., 8 pp.
                          CODEN: USXXAM
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE         APPLICATION NO.         DATE
     ---------------     ----    --------     --------------------    --------
     US 4927553           A      19900522     US 1983-492354          19830506
PRIORITY APPLN. INFO.:                        US 1983-492354          19830506
AB    A hydrolytically stable additive composition (e.g., for lubricating oil)
      comprises 75-99.5 weight parts of a boronated phenolic antioxidant and 0.5-25
      weight parts of pinane diol or pinacol; the antioxidant is a mixture of 4,4'-
      methylenebis(2,6-di-tert-butylphenol) 0-50, 4,4'-methylenebis(2,6-di-
      tertbutylphenol)-di-(di-sec-butyl orthoborate) 10-75, and 4,4'-
      methylenebis(2,6-di-tert-butylphenol)-mono-(di-sec-butyl orthoborate) 5-75
      weight%.  The diol is capable of reacting with boric acid formed as a
      hydrolysis product to form a stable ring structure soluble in a substrate. The
      additive composition prevents or cures a haze caused by hydrolysis.
ED    Entered STN:  09 Nov 1990
IT    88276-82-8
      RL: USES (Uses)
         (boronated antioxidants containing, pinane diol or pinacol in, for
         lubricating oils, for prevention and correction of haze caused by
         hydrolysis)
RN    88276-82-8  HCAPLUS
CN    Boric acid (H3BO3), 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]-
      2,6-bis(1,1-dimethylethyl)phenyl bis(1-methylpropyl) ester (9CI)  (CA
      INDEX NAME)
```

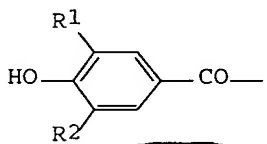


L104 ANSWER 5 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

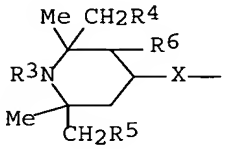
ACCESSION NUMBER: 1990:449667 HCAPLUS Full-text
DOCUMENT NUMBER: 113:49667
TITLE: Color photographic material containing yellow coupler
INVENTOR(S): Tanji, Masaki; Nishijima, Toyoki
PATENT ASSIGNEE(S): Konica Co., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01219835	A	19890901	JP 1988-46152	19880229
PRIORITY APPLN. INFO.:			JP 1988-46152	19880229

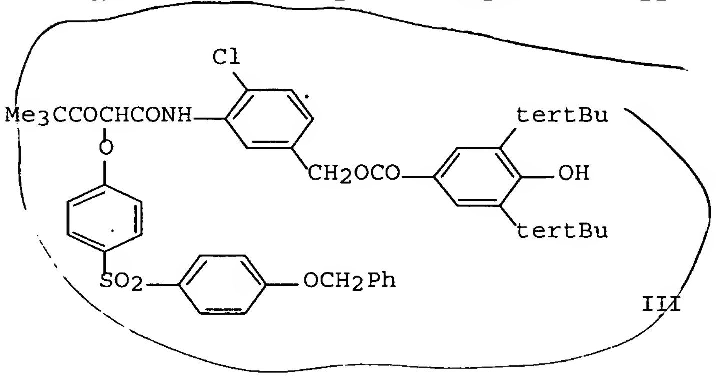
GI



I



II



III

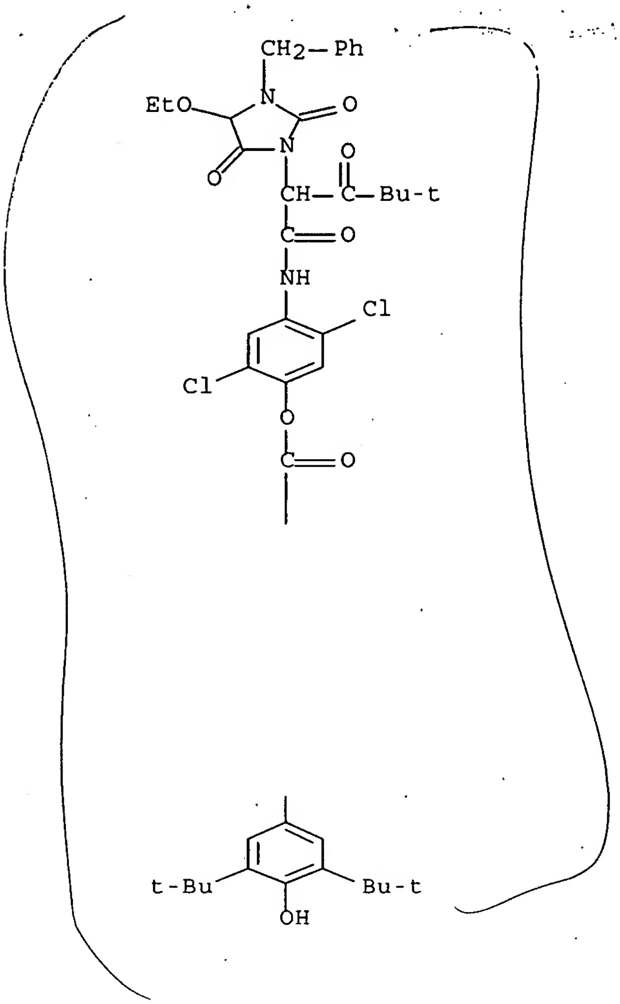
AB The photog. material, on a support, has a yellow dye-forming coupler containing ≥1 partial unit selected from the p-hydroxybenzoyl group I (R1, R2 = alkyl) and/or the piperidinyl group II (R3 = H, alkyl, alkenyl, acyl; R4-R6 = H, alkyl; X = a divalent linking group) in ≥1 Ag halide emulsion layer and has ≥90 mol% of AgCl-containing Ag halide grains in ≥1 Ag halide emulsion layer. Thus, a photog. material with a blue-sensitive Ag(Br,Cl) emulsion layer containing the yellow coupler III gave a yellow dye image with a high color d. and light resistance by rapid processing.

ED Entered STN: 03 Aug 1990

IT *113658-56-3*
RL: TEM (Technical or engineered material use); USES (Uses)
(photog yellow coupler, for color materials for rapid processing)

RN 113658-56-3 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,5-dichloro-4-[[2-[4-ethoxy-2,5-dioxo-3-(phenylmethyl)-1-imidazolidinyl]-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)



L104 ANSWER 6 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:431808 HCAPLUS Full-text

DOCUMENT NUMBER: 113:31808

TITLE: Color photographic material with improved lightfastness and color reproducibility

INVENTOR(S): Tai, Akiyoshi; Nishijima, Toyoki

PATENT ASSIGNEE(S): Konica Co., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

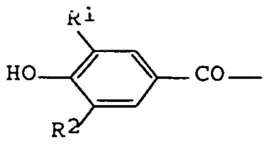
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

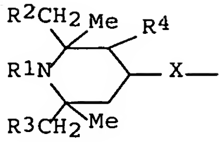
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01250944	A	19891005	JP 1988-79219	19880330
PRIORITY APPLN. INFO.:			JP 1988-79219	19880330

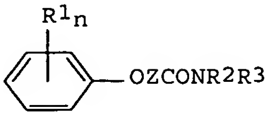
GI



I



II



III

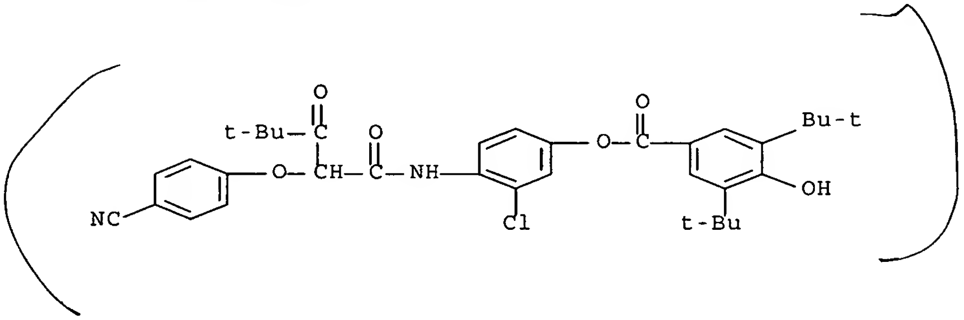
AB The title color photog. material contains a yellow coupler having the substructure I [R1, R2 = alkyl] or II [R1 = H, alkyl, alkenyl, alkynyl, aryl; R2-4 = H, alkyl; X = a divalent linking group] and ≥1 compound selected from hindered-phenol-type compds., polyalkylpiperidines, benzotriazole-type UV absorbers, and the compds. having the structure III [R = alkyl, alkoxy; Z = a divalent linking group; R2, R3 = H, alkyl, aryl, heterocyclyl; n = 1-3].

ED Entered STN: 21 Jul 1990

IT *113658-51-8 127929-13-9*
RL: USES (Uses)
(yellow photog. coupler, for providing dye images of improved colorfastness)

RN 113658-51-8 HCAPLUS

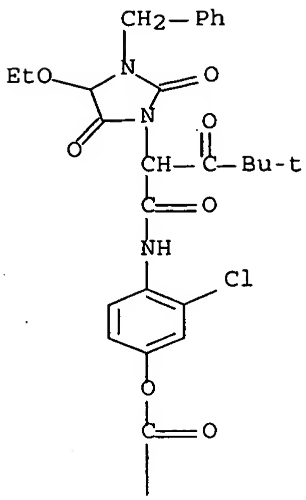
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 3-chloro-4-[[2-(4-cyanophenoxy)-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)



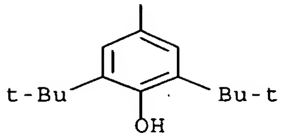
RN 127929-13-9 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 3-chloro-4-[[2-[4-ethoxy-2,5-dioxo-3-(phenylmethyl)-1-imidazolidinyl]-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



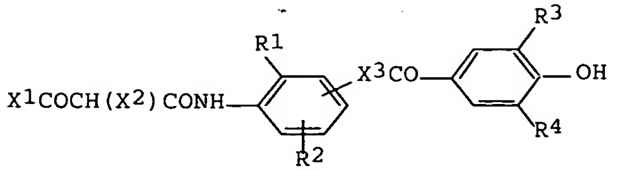
L104 ANSWER 7 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1990:88171 HCAPLUS Full-text
DOCUMENT NUMBER:	112:88171
TITLE:	Silver halide photographic materials containing yellow couplers
INVENTOR(S):	Nishijima, Toyoki
PATENT ASSIGNEE(S):	Konica Co., Japan
SOURCE:	Jpn. Kokai Tokkyo Koho, 16 pp. CODEN: JKXXAF
DOCUMENT TYPE:	Patent
LANGUAGE:	Japanese
FAMILY ACC. NUM. COUNT:	1

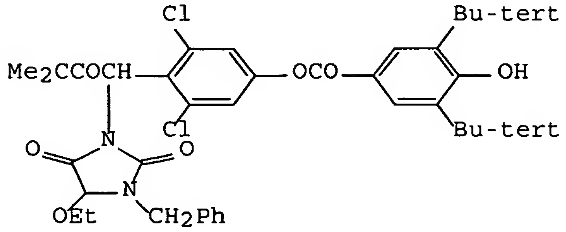
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 01177549	A	19890713	JP 1988-2076		19880107
US 4954432	A	19900904	US 1988-291750		19881229
PRIORITY APPLN. INFO.:			JP 1988-2076	A	19880107

GI



I



II

AB Yellow couplers I (R1 = halo, C1-4-alkoxy; R2 = H, halo, alkyl, alkoxy, R3-4 = alkyls as anchor groups; X1 = tert-Bu, p-alkoxyphenyl; X2 = H, leaving group; X3 = connecting group), and high-boiling solvents with dielec. constant ≤6.0, are contained in emulsion layer(s) of the photog. materials. These provide decrease of defects in coating process, high fastness in exposure, and good gradation. Thus, 100 g II dissolved in mixture of 100 mL dioctyl phthalate and 200 mL EtOAc was homogenized with gelatin solution and mixed with blue-sensitive Ag(Cl,Br) emulsion. Polyethylene-coated paper was coated with this mixture, exposed with blue light, and normally developed. Number of defects in coating process was much smaller than when coupler-solvent combinations outside the invention were used. Obtained image showed high fastness to exposure to sunlight, and high γ value. Application of the invention to full-color paper also showed good results.

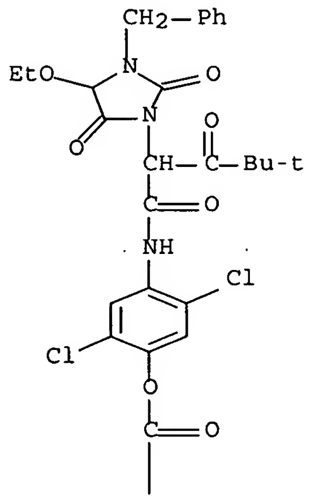
ED Entered STN: 03 Mar 1990

IT *113658-56-3*
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. coupler, yellow, with low-dielec. solvents, coating ease and color fastness of)

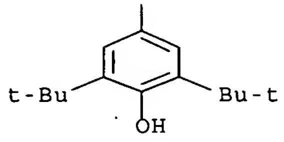
RN 113658-56-3 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,5-dichloro-4-[[2-[4-ethoxy-2,5-dioxo-3-(phenylmethyl)-1-imidazolidinyl]-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



L104 ANSWER 8 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:77207 HCAPLUS Full-text

DOCUMENT NUMBER: 112:77207

TITLE: Preparation and formulation of 2-[1-(phenoxyphenyl)ethan-1-ylidene]-1,3-dithianes and analogs as anticholesteremics

INVENTOR(S): Nagamine, Masashi; Hiraga, Kunikazu; Sakai, Atsushi; Uchida, Matazaemon

PATENT ASSIGNEE(S): Nihon Nohyaku Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 40 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

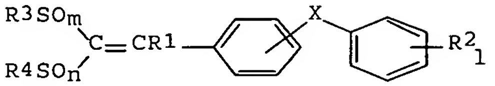
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

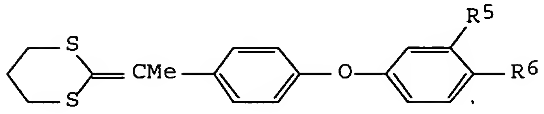
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 324472	A2	19890719	EP 1989-100480	19890112
EP 324472	A3	19890823		
EP 324472	B1	19920902		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CA 1327361	C	19940301	CA 1989-587377	19890103

```
     AU 8928369            A      19890720    AU 1989-28369          19890111
     AU 608401             B2     19910328
     NO 8900141            A      19890717    NO 1989-141            19890112
     NO 169892             B      19920511
     NO 169892             C      19920819
     AT 80161              T      19920915    AT 1989-100480         19890112
     ES 2046334            T3     19940201    ES 1989-100480         19890112
     DK 8900137            A      19890715    DK 1989-137            19890113
     FI 8900178            A      19890715    FI 1989-178            19890113
     FI 91399              B      19940315
     FI 91399              C      19940627
     HU 49849              A2     19891128    HU 1989-120            19890113
     HU 203868             B      19911028
     KR 9711008            B1     19970705    KR 1989-293            19890113
     JP 02000770           A      19900105    JP 1989-6286           19890114
     US 5098928            A      19920324    US 1990-602932         19901025
PRIORITY APPLN. INFO.:                        JP 1988-6303        A  19880114
                                              US 1989-295365      B1 19890110
                                              EP 1989-100480      A  19890112
```

GI

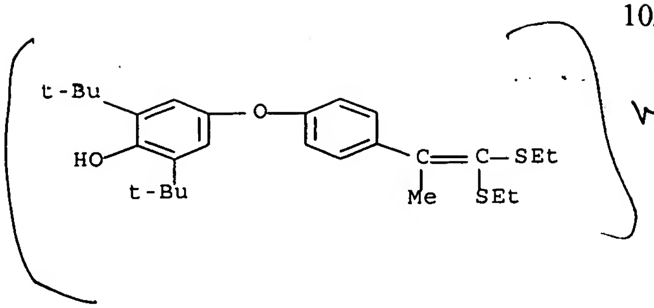


I



II

```
AB    The title compds. [I; R1 = C1-6 alkyl optionally substituted by C2-7
      alkoxycarbonyl, di(C1-4 alkyl)amino, CO2H; R2 = H, halo, OH, CO2H,
      (un)substituted C1-16 alkyl, etc.; R3, R4 = C1-6 alkyl; R3R4 = (N-interrupted)
      C2-4 alkylene; X = O, S, CH2; l = 1-3; m, n = 0, 1] were prepared  Thus, 2-
      diethoxyphosphoryl-1,3-dithiane was stirred 1 h at -73° with BuLi in THF after
      which 4-(4-fluorophenoxy)acetophenone was added and stirring continued
      overnight to give 92.1% title compound II (R5 = H, R6 = F) (III).  II (R5 =
      OH, R6 = H) gave a 91% reduction of elevated blood cholesterol levels in rats
      receiving 5 mL/kg/day a solution (0.6 or 6.0 weight/volume%) for 4 days.  A
      powder was prepared containing III, MgO 10, and lactose 80 parts.
ED    Entered STN:  03 Mar 1990
IT    124747-13-3P
      RL: SPN (Synthetic preparation); PREP (Preparation)
         (preparation of, as anticholesteremic)
RN    124747-13-3   HCAPLUS
CN    Phenol, 4-[4-[2,2-bis(ethylthio)-1-methylethenyl]phenoxy]-2,6-bis(1,1-
      dimethylethyl)- (9CI)  (CA INDEX NAME)
```

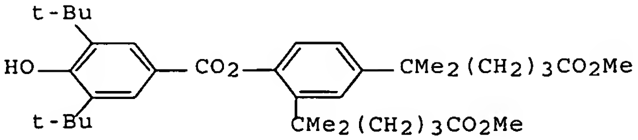


w.

L104 ANSWER 9 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1989:605312 HCAPLUS Full-text
DOCUMENT NUMBER: 111:205312
TITLE: Stabilizers for color photographic materials
INVENTOR(S): Leppard, David G.
PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.
SOURCE: Eur. Pat. Appl., 36 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
EP 309957	A1	19890405	EP 1988-115785		19880926
EP 309957	B1	19920527			
R: BE, DE, FR, GB, IT, NL					
JP 01108545	A	19890425	JP 1988-243755		19880928
US 5059515	A	19911022	US 1990-590038		19900928
US 5202458	A	19930413	US 1991-740587		19910805
PRIORITY APPLN. INFO.:			CH 1987-3751	A	19870928
			US 1988-250850	B1	19880928
			US 1990-590038	A3	19900928

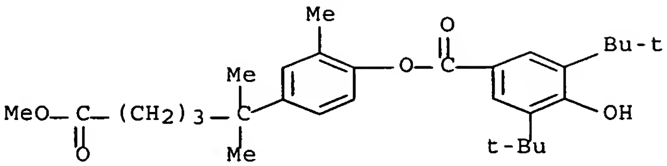
GI



I

AB Phenolic derivs. are described which are useful as light stabilizers in color photog. materials. A color photog. paper containing a yellow coupler, a gelatin-AgBr emulsion, a triazine derivative hardener, and the phenolic light stabilizer I was wedge exposed, processed, and the yellow wedge then exposed in an Atlas Weather-Ometer (30 kJ/cm2) to show a dye d. loss of 34%.
ED Entered STN: 25 Nov 1989
IT *123632-75-7*
RL: USES (Uses)
(photog. light stabilizer)
RN 123632-75-7 HCAPLUS
CN Benzenepentanoic acid, 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxybenzoyl]oxy]-δ,δ,3-trimethyl-, methyl ester (9CI) (CA

INDEX NAME)

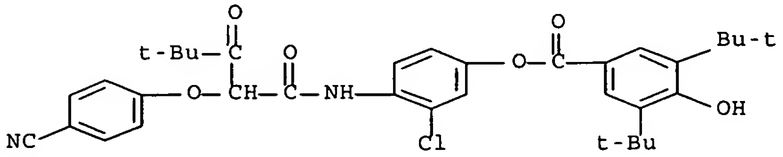


```
L104 ANSWER 10 OF 24  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         1988:158987  HCAPLUS  Full-text
DOCUMENT NUMBER:          108:158987
TITLE:                    Acetanilide derivative photographic yellow coupler
INVENTOR(S):              Buckland, Paul Richard; Tsoi, Siu Chung
PATENT ASSIGNEE(S):       Eastman Kodak Co., USA; Kodak Ltd.
SOURCE:                   Eur. Pat. Appl., 21 pp.
                          CODEN: EPXXDW
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE       APPLICATION NO.        DATE
     ---------------     ----   --------   --------------------   --------
     EP 249473            A2    19871216   EP 1987-305161         19870611
     EP 249473            A3    19890510
     EP 249473            B1    19920812
         R:  DE, FR, GB, NL
     US 4758501           A     19880719   US 1987-58308          19870605
     JP 62297846          A     19871225   JP 1987-143431         19870610
     JP 2633853           B2    19970723
PRIORITY APPLN. INFO.:                     GB 1986-14213       A  19860611
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

AB    An acetanilide derivative photog. yellow coupler has the general formula I (R
      = tert-Bu or p-alkoxyphenyl; R1 = H or a group which splits off upon color
      development; R2 = halogen or C1-4 alkoxy; R3 = halogen, alkoxy or alkyl; R4,
      R5 = alkyl so chosen that the coupler is nondiffusible when present in a
      photog. material; Z = a linking group providing image dyes of improved
      stability).  Preferred color developing agents for color Ag halide photog.
      materials containing the I couplers are p-phenylenediamine derivs.  Thus, a Ag
      halide photog. emulsion containing the yellow coupler II was prepared, coated
      on a support, overcoated with a protective layer, exposed through a step
      tablet, developed in a solution containing I, bleached, fixed, washed, and
      dried. The processed photog. material was then exposed to a high-intensity Xe
      lamp (50 Klx) through a Wratten 2B filter for 2 wk to show a d. decrease (ΔD)
      of the dye image of 0.06 (from D = 1.7).
ED    Entered STN:  30 Apr 1988
IT    113658-51-8 113658-55-2 113658-56-3
```

113658-57-4
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. yellow coupler, for forming dye images of improved durability)

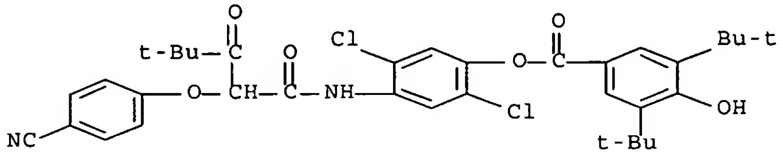
RN 113658-51-8 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 3-chloro-4-[[2-(4-cyanophenoxy)-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)



RN 113658-55-2 HCAPLUS

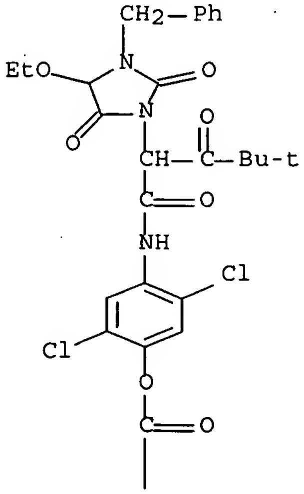
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,5-dichloro-4-[[2-(4-cyanophenoxy)-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)



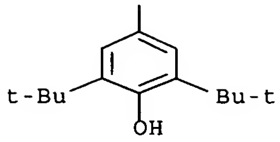
RN 113658-56-3 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,5-dichloro-4-[[2-[4-ethoxy-2,5-dioxo-3-(phenylmethyl)-1-imidazolidinyl]-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

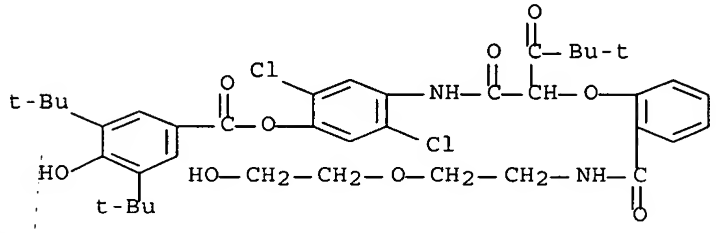


PAGE 2-A



RN 113658-57-4 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,5-dichloro-4-[[2-[2-[[[2-(2-hydroxyethoxy)ethyl]amino]carbonyl]phenoxy]-4,4-dimethyl-1,3-dioxopentyl]amino]phenyl ester (9CI) (CA INDEX NAME)



L104 ANSWER 11 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:70140 HCAPLUS Full-text

DOCUMENT NUMBER: 106:70140

TITLE: Fuel compositions

INVENTOR(S): Zaweski, Edward F.; Niebylski, Leonard M.

PATENT ASSIGNEE(S): Ethyl Corp., USA

SOURCE: U.S., 7 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4623360	A	19861118	US 1985-793624	19851031
PRIORITY APPLN. INFO.:			US 1985-793624	19851031

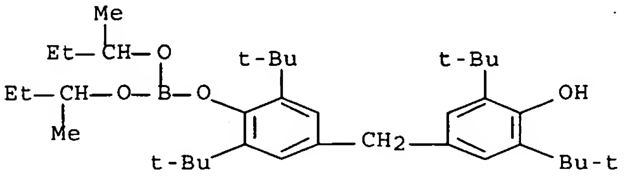
AB Diesel fuels for indirect-injection compression ignition engines are modified by adding a combination of (1) an organic nitrate ignition accelerator and (2) a boronated phenolic compound The additive minimizes coking in prechambers or swirl chambers of engines. Mixed octyl nitrates 140 and the boronated phenol mixture 50 lb/1000 barrels were added to diesel fuel (cetane number 37, containing aroms. 41, olefins 2, and saturated hydrocarbons 57%). The modified diesel fuel was tested for 4 h in an engine at 1750 rpm, air temperature of 510-520°, air flow rate 32.5 L/min, and fuel flow rate 135 cm3/h. The amount of coking deposits was considerably less than that obtained with the unmodified diesel fuel.

ED Entered STN: 07 Mar 1987

IT *88276-82-8*
RL: USES (Uses)
(diesel fuel additive containing, for coking prevention)

RN 88276-82-8 HCAPLUS

CN Boric acid (H3BO3), 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]-2,6-bis(1,1-dimethylethyl)phenyl bis(1-methylpropyl) ester (9CI) (CA INDEX NAME)



L104 ANSWER 12 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:22793 HCAPLUS Full-text

DOCUMENT NUMBER: 100:22793

TITLE: Boron-containing esters, and their use as antioxidants

INVENTOR(S): Wright, William E.

PATENT ASSIGNEE(S): Ethyl Corp., USA

SOURCE: Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
EP 89844	A1	19830928	EP 1983-301562		19830321
EP 89844	B1	19851204			
R: BE, CH, DE, FR, GB, IT, LI, NL					
JP 58213082	A	19831210	JP 1983-47824		19830322
PRIORITY APPLN. INFO.:			US 1982-360781	A	19820322

OTHER SOURCE(S): MARPAT 100:22793

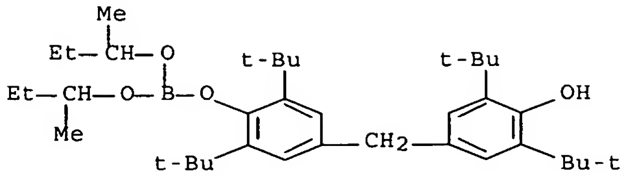
AB 4,4'-Methylenebis(2,6-di-tert-butylphenol) mono- or bis(di-sec-C4-12 alkyl orthoborate) esters, antioxidants for lubricating oils, were prepared Thus, 0.535 mol tri-sec-Bu orthoborate and 0.267 mol 4,4'-methylenebis(2,6-di- tert-butylphenol) (I) were stirred under nitrogen for 21 h while gradually heating from 213 to 256°. The product contained 18 weight% I, 51 weight% monoester, and 24 weight% di-ester. The ester product was a more effective antioxidant for lubricating oils than was I itself.

ED Entered STN: 12 May 1984

IT *88276-82-8P*
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and use as antioxidant for lubricating oils)

RN 88276-82-8 HCAPLUS

CN Boric acid (H3BO3), 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]-2,6-bis(1,1-dimethylethyl)phenyl bis(1-methylpropyl) ester (9CI) (CA INDEX NAME)



L104 ANSWER 13 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1980:94050 HCAPLUS Full-text
DOCUMENT NUMBER: 92:94050
TITLE: Anti-inflammatory agents
INVENTOR(S): Moore, George G. I.
PATENT ASSIGNEE(S): Riker Laboratories, Inc., USA
SOURCE: U.S., 4 pp.
CODEN: USXXAM

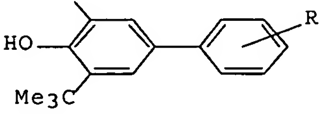
got it

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

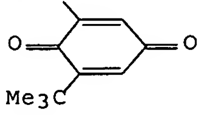
PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 4172151	A	19791023	US 1977-861892		19771219
US 4219501	A	19800826	US 1979-55334		19790706
US 4232043	A	19801104	US 1979-55324		19790706
PRIORITY APPLN. INFO.:			US 1977-797137	A3	19770516
			US 1977-861892	A3	19771219

OTHER SOURCE(S): MARPAT 92:94050

GI



I



II

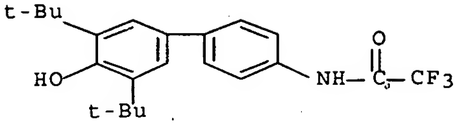
AB Di-tert-butylphenylphenols I (R = H, NH2, alkanamido, NHCOCF3), useful as anti-inflammatory agents, analgesics, antipyretics, and immunosuppressants (no data), were prepared Thus, I (R = OMe) was prepared by the Grignard reaction of 4-BrC6H4OMe with II followed by the LiAlH4 reduction of the resulting cyclohexadienone.

ED Entered STN: 12 May 1984

IT *72763-24-7P*
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

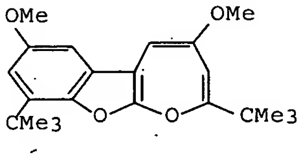
RN 72763-24-7 HCAPLUS

CN Acetamide, N-[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]-2,2,2-trifluoro- (9CI) (CA INDEX NAME)



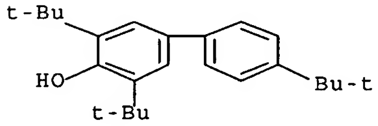
got it.

L104 ANSWER 14 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1978:443189 HCAPLUS Full-text
DOCUMENT NUMBER: 89:43189
TITLE: Oxidation of alkoxyphenols. XXI. Oxidative cross-coupling of phenols to unsymmetrical biphenyl-2,2'-diols
AUTHOR(S): Hewgill, F. Richmond; Howie, Graeme B.
CORPORATE SOURCE: Dep. Org. Chem., Univ. Western Australia, Nedlands, Australia
SOURCE: Australian Journal of Chemistry (1978), 31(5), 1061-8
CODEN: AJCHAS; ISSN: 0004-9425
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 89:43189
GI



I

AB Oxidation of several binary mixts. of 4-substituted 2-tert-butylphenols by potassium ferricyanide gave unsym. biphenyl-2,2'-diol. Several new oxepino[2,3-b]benzofurans, e.g. I, were obtained by the oxidation
ED Entered STN: 12 May 1984
IT *6257-39-2P*
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 6257-39-2 HCAPLUS
CN [1,1'-Biphenyl]-4-ol, 3,4',5-tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



L104 ANSWER 15 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1977:585520 HCAPLUS Full-text
DOCUMENT NUMBER:	87:185520
TITLE:	Light protecting agents
INVENTOR(S):	Lind, Hanns
PATENT ASSIGNEE(S):	Ciba-Geigy Corp., USA
SOURCE:	U.S., 9 pp. CODEN: USXXAM
DOCUMENT TYPE:	Patent
LANGUAGE:	English
FAMILY ACC. NUM. COUNT:	1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 4038250	A	19770726	US 1975-571142		19750424
PRIORITY APPLN. INFO.:			US 1971-174951	A1	19710825

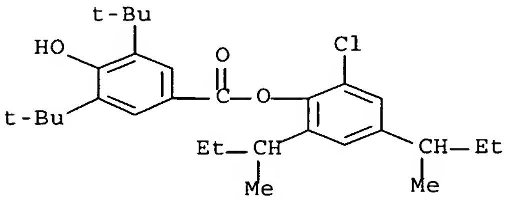
AB Substituted hydroxybenzoic acid substituted phenyl esters are compatible and effective light stabilizers for polyolefins. Thus, 39.4 g 3,5-di-tert-butyl-4-hydroxybenzoyl chloride and 26.8 g 4,6-di-tert-butyl-o-cresol were mixed in 50 mL dry pyridine and allowed to stand 12 h to give 2,4-di-tert-butyl-6-methylphenyl 3,5-di-tert-butyl-4- hydroxybenzoate (I) [35074-76-1]. Polypropylene [9003-07-0] 1000, com. hindered phenol aliphatic ester stabilizer 1, and I 2.5 parts were mixed and made into test strips. The strips required 1420 h exposure in a Xeno test apparatus for their tensile strength to drop to 30% of its original value, compared to 1060 with a com. stabilizer, and 420 with no stabilizer.

ED Entered STN: 12 May 1984

IT *38487-76-2 38487-79-5 38487-80-8*
38542-63-1
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(light stabilizers, for polyolefins)

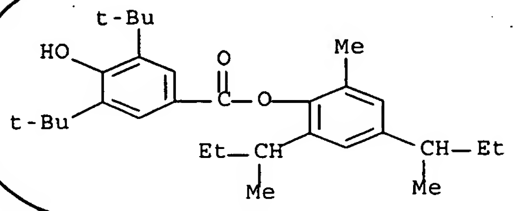
RN 38487-76-2 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2-chloro-4,6-bis(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)

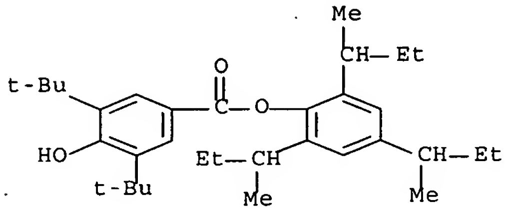


RN 38487-79-5 HCAPLUS

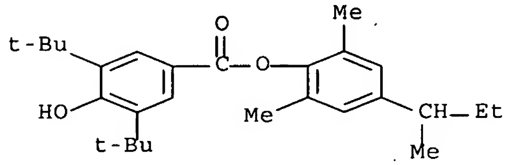
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2-methyl-4,6-bis(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)



```
RN   38487-80-8  HCAPLUS
CN   Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,4,6-tris(1-
     methylpropyl)phenyl ester (9CI)   (CA INDEX NAME)
```

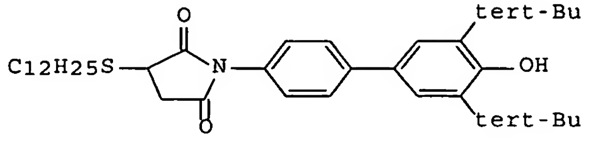


```
RN   38542-63-1  HCAPLUS
CN   Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,6-dimethyl-4-(1-
     methylpropyl)phenyl ester (9CI)   (CA INDEX NAME)
```

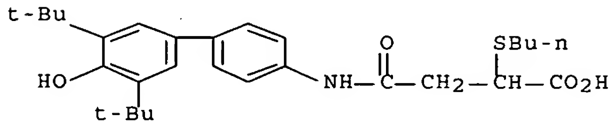


```
L104 ANSWER 16 OF 24  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:          1977:56243  HCAPLUS  Full-text
DOCUMENT NUMBER:           86:56243
TITLE:                     4-Hydroxy biphenyl derivatives useful as stabilizers
                           for organic materials
INVENTOR(S):               Hofer, K.; Galt, E.; Tscheulin, G.
PATENT ASSIGNEE(S):        Sandoz Ltd., Switz.
SOURCE:                    Belg., 27 pp. Addn. to Belg. 798,777.
                           CODEN: BEXXAL
DOCUMENT TYPE:             Patent
LANGUAGE:                  French
FAMILY ACC. NUM. COUNT:    1
PATENT INFORMATION:

     PATENT NO.            KIND    DATE          APPLICATION NO.         DATE
     ---------------       ----    --------      --------------------    --------
```

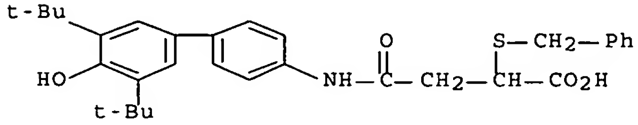
```
     BE 834906             A4    19760427    BE 1975-161283        19751027
     CH 583181             A5    19761231    CH 1974-14474         19741029
     FR 2289497            A2    19760528    FR 1975-33004         19751029
     FR 2289497            B2    19790713
PRIORITY APPLN. INFO.:                       CH 1974-14474      A  19741029
GI
```


II

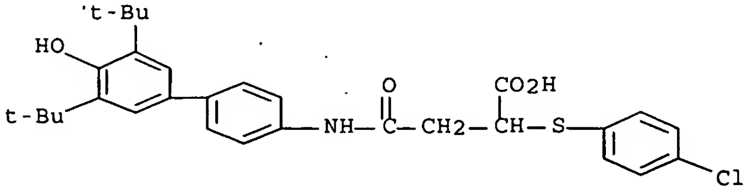
```
AB    3,5-Di-tert-butyl-4-hydroxy-4'-aminobiphenyl (I) [32559-12-9] was treated with
      substituted dicarboxylic acid anhydrides to give 4-hydroxybiphenyl derivs.
      useful as stabilizers against degradation by light, O, and heat, in
      polyolefins.  Thus, 5.9 parts I was refluxed 2 hr with 6.0 parts
      (dodecylthio)succinic anhydride [5530-88-1] in a mixture of hydrocarbons b.
      160-70° to give II [61193-02-0] m. 90-2°.  Polypropylene [9003-07-0] powder
      was mixed with 0.4% II, pressed 5 min at 180°, and exposed to O at 190° and 20
      mm.  The oxidation level of the molding containing II was lower than that of
      unstabilized polymer.
ED    Entered STN:  12 May 1984
IT    61192-94-7 61192-95-8 61192-96-9
      61192-97-0 61192-98-1 61192-99-2
      61258-76-2 61258-77-3
      RL: USES (Uses)
         (stabilizers)
RN    61192-94-7  HCAPLUS
CN    Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-
      4-yl]amino]-2-(butylthio)-4-oxo- (9CI)  (CA INDEX NAME)
```



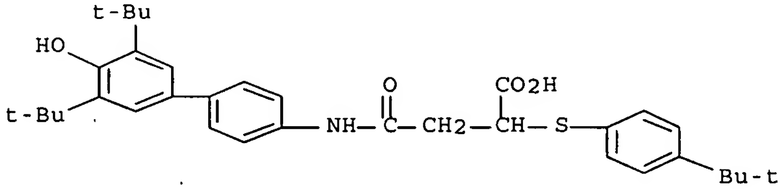
```
RN    61192-95-8  HCAPLUS
CN    Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-
      4-yl]amino]-4-oxo-2-[(phenylmethyl)thio]- (9CI)  (CA INDEX NAME)
```



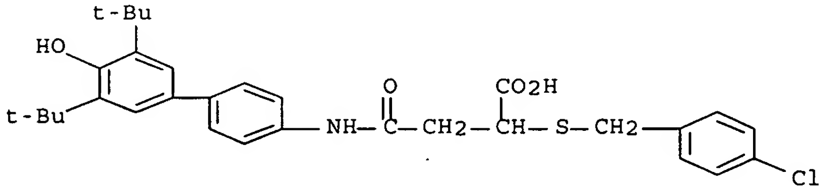
RN 61192-96-9 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-2-[(4-chlorophenyl)thio]-4-oxo- (9CI) (CA INDEX NAME)



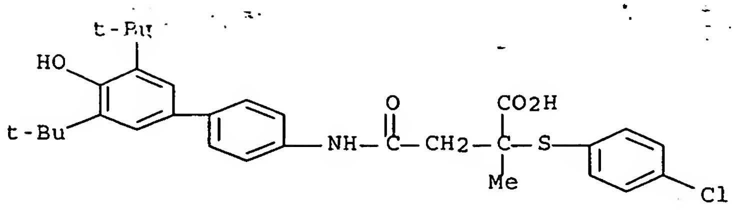
RN 61192-97-0 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-2-[[4-(1,1-dimethylethyl)phenyl]thio]-4-oxo- (9CI) (CA INDEX NAME)



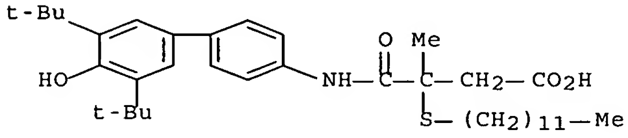
RN 61192-98-1 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-2-[[(4-chlorophenyl)methyl]thio]-4-oxo- (9CI) (CA INDEX NAME)



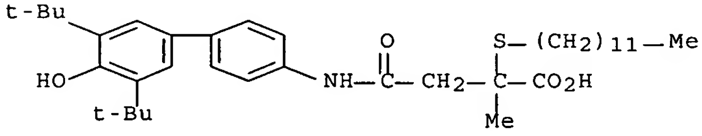
RN 61192-99-2 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-2-[(4-chlorophenyl)thio]-2-methyl-4-oxo- (9CI) (CA INDEX NAME)



RN 61258-76-2 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-3-(dodecylthio)-3-methyl-4-oxo- (9CI) (CA INDEX NAME)



RN 61258-77-3 HCAPLUS
CN Butanoic acid, 4-[[3',5'-bis(1,1-dimethylethyl)-4'-hydroxy[1,1'-biphenyl]-4-yl]amino]-2-(dodecylthio)-2-methyl-4-oxo- (9CI) (CA INDEX NAME)

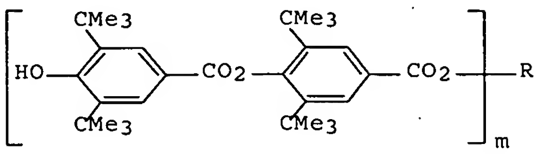


L104 ANSWER 17 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1976:406670 HCAPLUS Full-text
DOCUMENT NUMBER: 85:6670
TITLE: Compositions stabilized with polyol esters of benzoyloxybenzoic acids
INVENTOR(S): Spivack, John J.; Luzzi, John J.
PATENT ASSIGNEE(S): Ciba-Geigy Corp., USA
SOURCE: U.S., 7 pp. Division of U. S. 3,884,960.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3943102	A	19760309	US 1975-558983	19750317
US 3884960	A	19750520	US 1972-318326	19721226
FR 2211446	A1	19740719	FR 1973-45687	19731220
FR 2211446	B1	19780324		

NL 7317615	A	19740628	NL 1973-17615		19731221
JP 49101278	A	19740925	JP 1974-4557		19731221
IT 1000588	B	19760410	IT 1973-70809		19731221
CH 586250	A5	19770331	CH 1973-18043		19731221
ES 421758	A1	19770301	ES 1973-421758		19731224
GB 1415266	A	19751126	GB 1973-59772		19731227
PRIORITY APPLN. INFO.:			US 1972-318326	A3	19721226
			CH 1973-17555	A	19731215

GI



I

AB Esters (I, R = polyol residue, m = 2,3,4) were effective light stabilizers for synthetic fibers, polypropylene (II) [9003-07-0] film, polystyrene [9003-53-6], polyethylene [9002-88-4], SBR, or polyacetal resins. E.g. a film, produced by compression molding of powdered II containing 0.5% 2,2-dimethyl-1,3-propanediol bis[4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)- 3,5-di-tert-butylbenzoate] [*53606-84-1*] and 0.2% di-n-octadecyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate (III) required 645 hr for development of 0.5 CO absorbance units in a standard test while I films containing only 0.2% III required 195 hr to reach the same level of oxidation Similarly, II monofilaments stabilized with triethylene glycol bis[4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoate] [53606-83-0] and III retained their tenacity much longer during exposion to sunlight than II fibers stabilized with III only. The esters were synthesized from diols, triols or tetraols and 4-(3,5-di-tert-butyl-4- hydroxybenzoyloxy)-3,5-di-tert-butylbenzoyl chloride (IV) [53499-86-8] by refluxing in PhMe containing NEt3. IV was obtained by dimerizing 3,5-di-tert-butyl-4-hydroxybenzoyl chloride [40056-43-7] in PhMe containing NEt3.

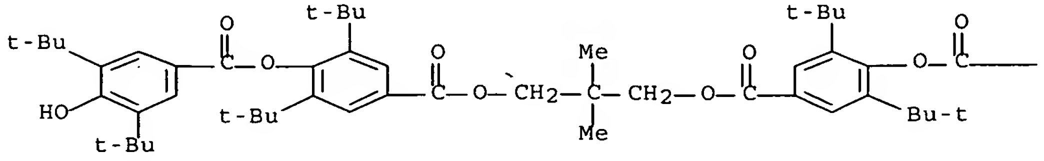
ED Entered STN: 12 May 1984

IT *53606-84-1 53606-87-4*
RL: USES (Uses)
(light stabilizer, for synthetic fibers or plastics or SBR)

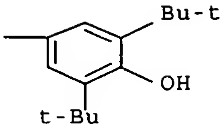
RN 53606-84-1 HCAPLUS

CN Benzoic acid, 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxybenzoyl]oxy]-3,5-bis(1,1-dimethylethyl)-, 2,2-dimethyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

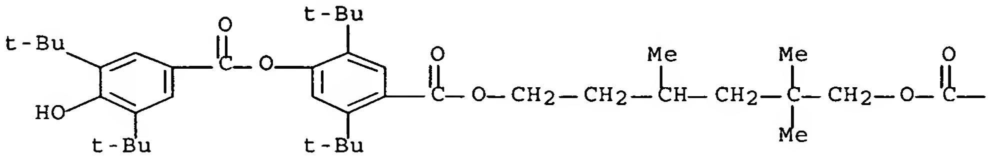


PAGE 1-B

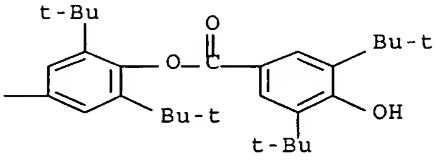


RN 53606-87-4 HCAPLUS
CN Benzoic acid, 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxybenzoyl]oxy]-3,5-bis(1,1-dimethylethyl)-, 2,2,4-trimethyl-1,6-hexanediyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L104 ANSWER 18 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1975:44351 HCAPLUS Full-text
DOCUMENT NUMBER:	82:44351
TITLE:	Benzoyloxybenzoates
INVENTOR(S):	Spivack, John D.; Luzzi, John J.
PATENT ASSIGNEE(S):	Ciba-Geigy A.-G.
SOURCE:	Ger. Offen., 23 pp. CODEN: GWXXBX
DOCUMENT TYPE:	Patent
LANGUAGE:	German
FAMILY ACC. NUM. COUNT:	3
PATENT INFORMATION:	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2364120	A1	19740627	DE 1973-2364120	19731221
US 3884960	A	19750520	US 1972-318326	19721226
FR 2211446	A1	19740719	FR 1973-45687	19731220
FR 2211446	B1	19780324		
NL 7317615	A	19740628	NL 1973-17615	19731221
JP 49101278	A	19740925	JP 1974-4557	19731221

```
     IT 1000588           B      19760410   IT 1973-70809         19731221
     CH 586250            A5     19770331   CH 1973-18043         19731221
     ES 421758            A1     19770301   ES 1973-421758        19731224
     GB 1415266           A      19751126   GB 1973-59772         19731227
PRIORITY APPLN. INFO.:                      US 1972-318326     A  19721226
                                            CH 1973-17555      A  19731215
```

GI For diagram(s), see printed CA Issue.

AB 1,6-Hexanediol bis[4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoate] (I) [53606-82-9] and 8 similar esters of tetra-, tri-, and diols were useful as light stabilizers in polymers. Thus, a toluene solution of 107.2 g 3,5-di-tert-butyl-4-hydroxybenzoyl chloride [40056-43-7] was treated slowly with 24.4 g Et3N to prepare 70 g 4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoyl chloride [53499-86-8] which (10 g) was treated with 2.4 g 1,6-hexanediol [629-11-8] and 2.0g Et3N to prepare 9 g I. Polypropylene [9003-07-0] containing 0.5% I resisted degradation by sunlight approx. twice as long as polymer containing 0.1% Ca stearate and 0.2% dioctadecyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate.

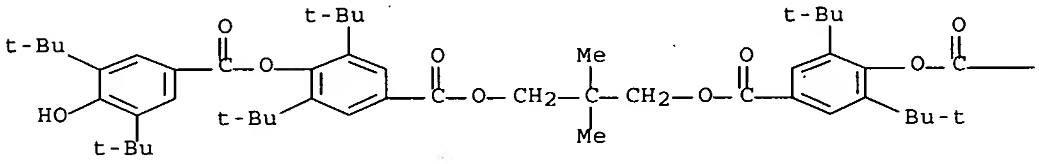
ED Entered STN: 12 May 1984

IT *53606-84-1 53606-87-4*
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(light stabilizers, for polymers)

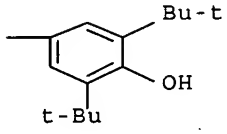
RN 53606-84-1 HCAPLUS

CN Benzoic acid, 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxybenzoyl]oxy]-3,5-bis(1,1-dimethylethyl)-, 2,2-dimethyl-1,3-propanediyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



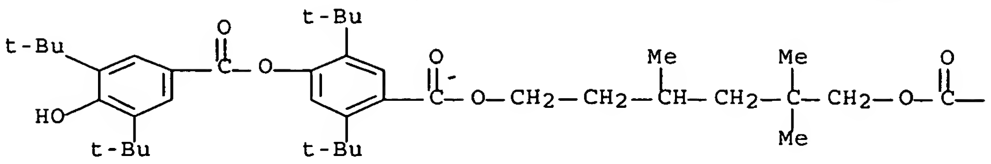
PAGE 1-B



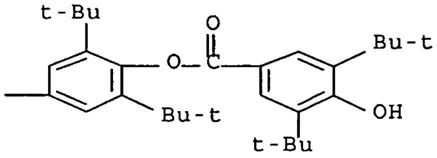
RN 53606-87-4 HCAPLUS

CN Benzoic acid, 4-[[3,5-bis(1,1-dimethylethyl)-4-hydroxybenzoyl]oxy]-3,5-bis(1,1-dimethylethyl)-, 2,2,4-trimethyl-1,6-hexanediyl ester (9CI) (CA INDEX NAME)

PAGE 1 A



PAGE 1-B



L104 ANSWER 19 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:44350 HCAPLUS Full-text

DOCUMENT NUMBER: 82:44350

TITLE: Benzoyloxybenzoates and compositions stabilized with them

INVENTOR(S): Spivack, John D.; Luzzi, John J.

PATENT ASSIGNEE(S): Ciba-Geigy A.-G.

SOURCE: Ger. Offen., 27 pp.
CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
DE 2364123	A1	19740627	DE 1973-2364123		19731221
AU 7363297	A	19750612	AU 1973-63297		19731206
CH 586728	A5	19770415	CH 1973-17555		19731215
NL 7317422	A	19740628	NL 1973-17422		19731219
FR 2211445	A1	19740719	FR 1973-45685		19731220
AT 7310767	A	19750815	AT 1973-10767		19731221
AT 329878	B	19760610			
IT 1000599	B	19760410	IT 1973-70822		19731221
JP 49101276	A	19740925	JP 1974-4340		19731222
GB 1425390	A	19760218	GB 1973-59768		19731227
US 4051104	A	19770927	US 1975-563251		19750328
US 4120846	A	19781017	US 1977-835760		19770922
PRIORITY APPLN. INFO.:			US 1972-318324	A	19721226
			CH 1973-17555	A	19731215
			US 1975-563251	A3	19750328

GI For diagram(s), see printed CA Issue.

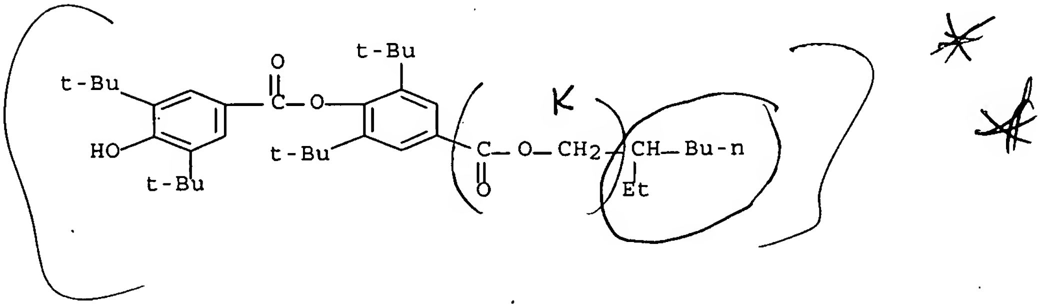
AB 2,4-Di-tert-butylphenyl 4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoate (I) [53606-90-9], octadecyl 4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoate [53606-96-5], and 11 similar esters were useful as light stabilizers in polymers. Thus, a toluene solution of 3,5-di-tert-butyl-4-hydroxybenzoyl chloride [40056-43-7] was treated slowly with Et3N to prepare 4-(3,5-di-tert-butyl-4-hydroxybenzoyloxy)-3,5-di-tert-butylbenzoyl chloride [53499-86-8] which was treated with 2,4-di-tert-butylphenol [96-76-4] and Et3N to prepare I. Polypropene fibers containing 0.25% I resisted degradation by sunlight approx. twice as long as fibers containing 0.1% Ca stearate and 0.2% dioctadecyl 3,5-di-tert-butyl-4-hydroxylbenzylphosphonate.

ED Entered STN: 12 May 1984

IT *53606-99-8*
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(light stabilizers, for polymers)

RN 53606-99-8 HCAPLUS

CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,6-bis(1,1-dimethylethyl)-4-[[(2-ethylhexyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)



L104 ANSWER 20 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1972:420636 HCAPLUS Full-text
DOCUMENT NUMBER: 77:20636
TITLE: 4-Hydroxybenzoic acid aryl esters for protecting light-sensitive polyolefins
INVENTOR(S): Lind, Hanns
PATENT ASSIGNEE(S): Ciba-Geigy A.-G.
SOURCE: Ger. Offen., 30 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
DE 2142679	A	19720309	DE 1971-2142679		19710825
CH 527873	A	19720915	CH 1970-527873		19700826
AU 7132559	A	19730222	AU 1971-32559		19710819
GB 1331353	A	19730926	GB 1971-39412		19710823
NL 7111710	A	19720229	NL 1971-11710		19710825
AT 307749	B	19730612	AT 1971-7427		19710825
ES 394501	A1	19740916	ES 1971-394501		19710825
FR 2106095	A5	19720428	FR 1971-31025		19710826
PRIORITY APPLN. INFO.:			CH 1970-12750	A	19700826

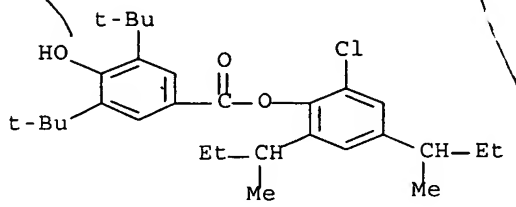
AB Polypropylene (I) [9003-07-0] or polyethylene [9002-88-4] were light-stabilized by incorporating aromatic esters of hydroxybenzoic acids (II), where R1 = alkyl, cycloalkyl, or aralkyl; R2 = α-branched alkyl, cycloalkyl, or aralkyl; R3 and R5 are alkyl, cycloalkyl, aralkyl, Ph, or Cl; and R4 = H, alkyl, cycloalkyl, aralkyl, Ph, or Cl. Thus, 2,4-di-tert-butyl-o-cresol was treated with 3,5-di-tert-butyl-4- hydroxybenzoyl chloride in pyridine to give 2-methyl-4,6-di-tert- butylphenyl 3,5-di-tert-butyl-4-hydroxybenzoate (II, R3

= Me, R1 = R2 = R4 = R5 = tert-Bu) (III) [35074-[illegible]-1], m.p. 173-4.deg.. Then, a mixture of I 1000, octadecyl β-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate 1, and III 2.5 parts were mixed and granulated at 200.deg.. The mix was extruded to give a film which was tested in a Xeno 150 apparatus The sample was exposed 1420 hr before the tenacity was lowered to 30% of the original. Numerous other examples of aromatic esters of hydroxybenzoic acids were given.

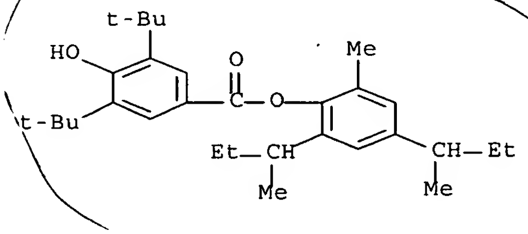
ED Entered STN: 12 May 1984

IT *38487-76-2 38487-79-5 38487-80-8*
38542-63-1
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(light stabilizers, for polyolefins)

RN 38487-76-2 HCAPLUS
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2-chloro-4,6-bis(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)

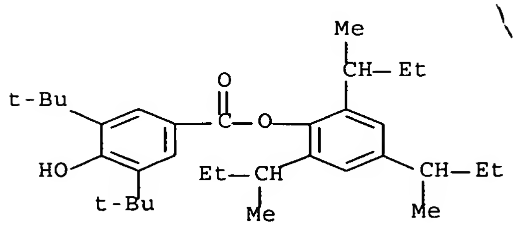


RN 38487-79-5 HCAPLUS
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2-methyl-4,6-bis(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)

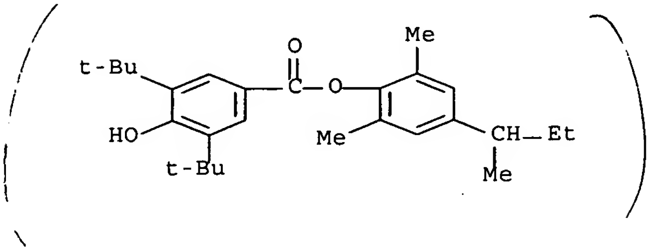


← 201

RN 38487-80-8 HCAPLUS
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,4,6-tris(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)



RN 38542-63-1 HCAPLUS
CN Benzoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,6-dimethyl-4-(1-methylpropyl)phenyl ester (9CI) (CA INDEX NAME)

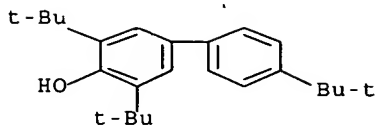


L104 ANSWER 21 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1968:467034 HCAPLUS Full-text
DOCUMENT NUMBER:	69:67034
TITLE:	Arylation of aromatic hydrocarbons during thermal decomposition of 2,6-di-tert-butyl-p-benzoquinone diazide
AUTHOR(S):	Nikiforov, G. A.; Plekhanova, L. G.; Ershov, V. V.; Rozenberg, A. N.; Bogdanov, G. N.; Prokof'ev, A. I.; Solodovnikov, S. P.
CORPORATE SOURCE:	Inst. Khim. Fiz., Moscow, USSR
SOURCE:	Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1968), (1), 204-6 CODEN: IASKA6; ISSN: 0002-3353
DOCUMENT TYPE:	Journal
LANGUAGE:	Russian

AB Heating 1 g. 2,6-di-tert-butyl-p-benzoquinone diazide in C_6H_6 and 0.5 ml. absolute EtOH 2 hrs. under argon atmospheric gave after evaporation and separation on Al_2O_3 thin layer 76% 4-phenyl-2,6-di-tert-butylphenol, m. 100-1°; similarly were obtained 4-R-substituted 2,6-di-tert-butylphenols (R shown) by thermolysis of the diazide in appropriate aromatic solvents: MeC_6H_4, m. 120-1°; EtC_6H_4, m. 124-5°; iso-PrC_6H_4, m. 104-5°; $Me_3CC_6H_4$, m. 131-2°, $MeOC_6H_4$, m. 105-6°; $PhOC_6H_4$, m. 152-3°; ClC_6H_4 (I), m. 140-1°; $Et_2NC_6H_4$, m. 117-18°; Ac-C_6H_4, m. 137-8°; $OHCC_6H_4$, m. 100-1°. The yields were 16 (Cl)-76(H)%. Treating 11 g. 2,6-di-tert-butyl-p-benzoquinone with p-ClC_6H_4HgBr from 9.4 g. RBr in Et_2O gave 4-p-chlorophenyl-2,6-di-tert- butylquinol, m. 125-7°. This and $LiAlH_4$ in Et_2O 1 day gave 4-p-chlorophenyl-2,6-di-tert-butylphenol, 85%, m. 140-1°, identical with I above. The addition of about 1% absolute EtOH to the reaction mixture appeared to be necessary for promoting proton transfer in conversion of intermediate cyclohexadienone into the aromatic biphenyl system. The individuality of the products was confirmed by chromatog. and uv spectra along with ir spectra showed the presence of hindered HO groups in all. The E.P.R spectra of free radicals formed from the above phenols showed their para structures.

ED Entered STN: 12 May 1984
IT *6257-39-2P*
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 6257-39-2 HCAPLUS
CN [1,1'-Biphenyl]-4-ol, 3,4',5-tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



L104 ANSWER 22 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	1966:35203 HCAPLUS Full-text
DOCUMENT NUMBER:	64:35203
ORIGINAL REFERENCE NO.:	64:6456h,6457a-f
TITLE:	Spin density distribution in radicals. III. Participation of phenyl groups in the aroxyl mesomerism
AUTHOR(S):	Rieker, Anton; Scheffler, Klaus
CORPORATE SOURCE:	Univ. Tuebingen, Germany
SOURCE:	Justus Liebigs Annalen der Chemie (1965), 689, 78-92 CODEN: JLACBF; ISSN: 0075-4617
DOCUMENT TYPE:	Journal
LANGUAGE:	German

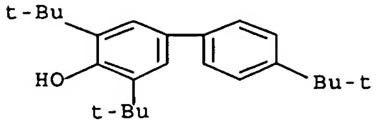
GI For diagram(s), see printed CA Issue.

AB cf. CA 63, 5497e. An E.S.R. investigation was made on 15 different types of substituted 2,6-di-tert-butyl-4-phenylphenoxyls, whose synthesis is described. The results indicated that the stabilizing effect of a 4-Ph group and of a 4-tert-Bu group on the 2,6-di-tert-butylphenoxyl system and the influence of the free spin density distribution by these groups was of the same order of magnitude. The sum of the spin density values in the 4-Ph ring was estimated to be .apprx.7%. Thereby, the coupling parameters of the protons on C-atoms 3,5,-2',4', and 6' in one and the same compound were identical within the accuracy of the measurement. Different types of substitution of the 4-Ph ring (Br, Ph, Me, Me3C, OMe) changed this symmetry only immaterially. The appropriate quinol (I) (CA 63, 16231c) (.apprx.2.0 g.) in 30-40 cc. MeOH containing 2 g. Zn dust treated dropwise slowly with 10-20 cc. concentrated HCl (exothermic reaction) and cooled deposited crystalline II; when II remained oily, they were isolated with Et2O and recrystd. from MeOH or petroleum ether (p.e.). The II listed in the table were prepared The constitution of the II was determined by analysis and ir spectroscopy. R1, R2, R3, R4, R5, R6, % yield, M.p.; H, H, H, H, H, H, 91, 100-1° (MeOH-p.e.); D, H, H, H, H, H, --, 100-1°(MeOH- p.e.); H, D, D, D, D, D, 92, 100-1° (MeOH-p.e.); H, H, H, Ph, H, H, 58, 150-2° (MeOH-C6H6); H, Me, H, H, H, H, 95, 85-7° (MeOH-p.e.); H, H, Me, H, H, H, 89, 107-8°(p.e.); H, H, H, Me, H, H, 90, 118-20° (MeOH-p.e.); H, H, H, CMe3, H, H, 92, 130-1.5° (MeOH-p.e.); H , Me, H, H, OMe, H, 47, 118-20° (p.e.-MeOH); H, Me, H, Me, H, Me, 96, 153-5° (MeOH); H, OMe, H, H, H, H, 74, 107-8.5° (MeOH-p.e.); H, H, OMe, H, H, H , 81, 99-100° (p.e.); H, H, H, OMe, H, H (III), 80, 102-3.5° (MeOH-p.e.); H, H, H, H, CH:CHCH:CH, 93, 107-8° (p.e.); H, H, H, Br, H, H, --, 137.5-9.0° (MeOH); In addition the constitution of III and its quinol precursor (IV) was determined by treatment with HI. IV (772 mg.), 0.3 cc. Ac2O, 20 mg. red P, and 3 cc. 70% HI refluxed 2 hrs. and poured into H2O and the product repptd. from 2N NaOH with 2N HCl gave 175 mg. (C6H4OH-4)2 (V), m. 260-5° (AcOH). Similar treatment of III gave .apprx.70% V, m. 265-70° (prior sintering). Aroxyl (VI) solns. for E.S.R. measurements were prepared by oxidation of II in E.S.R. tubes with PbO2 with rigorous exclusion of air. C6H6, cyclohexane, p.e., methylcyclohexane, Et2O, and EtOH served as solvents. The temperature of the measurements was varied from 80° to -130°. The results were tabulated.

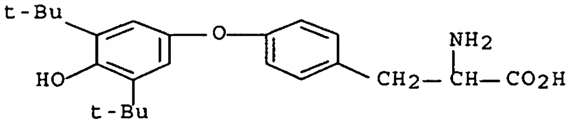
ED Entered STN: 22 Apr 2001

IT *6257-39-2P*, Phenol, 2,6-di-tert-butyl-4-(p-tert-butylphenyl)-
RL: PREP (Preparation)

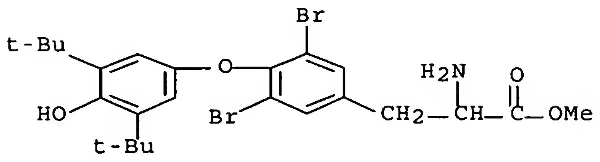
(preparation of)
RN 6257-39-2 HCAPLUS
CN [1,1'-Biphenyl]-4-ol, 3,4',5-tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



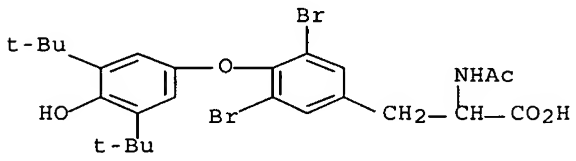
L104 ANSWER 23 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1962:482903 HCAPLUS Full-text
DOCUMENT NUMBER: 57:82903
ORIGINAL REFERENCE NO.: 57:16460d-f
TITLE: Model reactions for the biosynthesis of thyroxine. IV. Synthesis of analogs of thyroxine from derivatives of tyrosine and of dibromotyrosine
AUTHOR(S): Matsuura, Teruo; Nishinaga, Akira
CORPORATE SOURCE: Osaka City Univ.
SOURCE: Journal of Organic Chemistry (1962), 27, 3072-5
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 57:82903
GI For diagram(s), see printed CA Issue.
AB cf. J. Am. Chemical Society 82, 2055(1960); CA 55, 23629c. Derivs. of tyrosine and of dibromotyrosine react with the free radical 2,4,6-tri-tert-butylphenoxyl to form quinol ethers I that can be converted to the corresponding di-tert-butyl analogs II of thyroxine. This sequence of reactions represents a nonenzymic model for the conversion of diiodotyrosine to thyroxine in vivo.
ED Entered STN: 22 Apr 2001
IT *95293-04-2P*, Alanine, 3-[p-(3,5-di-tert-butyl-4-hydroxyphenoxy)-phenyl]- *95819-74-2P*, Alanine, 3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]-, methyl ester *95944-12-0P*, Alanine, N-acetyl-3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]- *96309-40-9P*, Alanine, 3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]- *98422-92-5P*, Alanine, N-acetyl-3-[p-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]-
RL: PREP (Preparation)
(preparation of)
RN 95293-04-2 HCAPLUS
CN Alanine, 3-[p-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]- (7CI) (CA INDEX NAME)



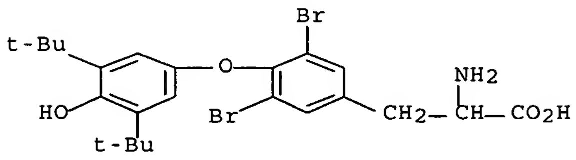
```
RN   95819-74-2   HCAPLUS
CN   Alanine, 3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]-,
     methyl ester (7CI)   (CA INDEX NAME)
```



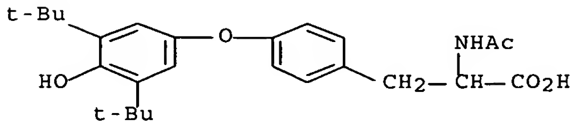
```
RN   95944-12-0   HCAPLUS
CN   Alanine, N-acetyl-3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-
     hydroxyphenoxy)phenyl]- (7CI)   (CA INDEX NAME)
```



```
RN   96309-40-9   HCAPLUS
CN   Alanine, 3-[3,5-dibromo-4-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]-
     (7CI)   (CA INDEX NAME)
```

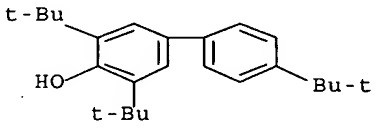


```
RN   98422-92-5   HCAPLUS
CN   Alanine, N-acetyl-3-[p-(3,5-di-tert-butyl-4-hydroxyphenoxy)phenyl]- (7CI)
     (CA INDEX NAME)
```



```
L104 ANSWER 24 OF 24   HCAPLUS   COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:        1960:110353   HCAPLUS
```

```
DOCUMENT NUMBER:           54:110353
ORIGINAL REFERENCE NO.:    54:20989b-c
TITLE:                     tert-Butyl-p-phenylphenols
INVENTOR(S):               Preston, Robert W. G.
PATENT ASSIGNEE(S):        Imperial Chemical Industries Ltd.
DOCUMENT TYPE:             Patent
LANGUAGE:                  Unavailable
FAMILY ACC. NUM. COUNT:    1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ---------------     ----   --------    --------------------    --------
     GB 833022                  19600421    GB 1957-6857            19570301
     DE 1114823                             DE
     US 2990428                 19610627    US 1958-716893          19580224
AB    The title compds. were useful as antioxidants for fats, fatty oils, and soaps.
      p-Phenylphenol (I) (170 g.) was dissolved in 750 g. 3,5-dimethylphenol, 17 g.
      20% oleum added, 130 g. isobutene (II) passed in at 80°, the mixture dissolved
      in 500 ml. benzene, washed with 10% aqueous NaOH, then water, the organic
      layer dried and distilled to give 53% 2-tert-butyl-p-phenylphenol (III), b6
      189-90°, m. 40-2°.  I (170 g.) and 237 g. II gave 92 g. III and 69 g. 2,4'-di-
      tert-butyl-p- phenylphenol (IV), b5 221-6°, m. 120-2°.  I (113 g.), 5.7 g. 20%
      oleum, and 120 g. II kept at 120° gave 81 g. IV and 65 g. 2,6,4'-tri-tert-
      butyl-p-phenylphenol, m. 134°.
ED    Entered STN:  22 Apr 2001
IT    6257-39-2P, Phenol, 2,6-di-tert-butyl-4-(p-tert-butylphenyl)-
      RL: PREP (Preparation)
         (preparation of)
RN    6257-39-2  HCAPLUS
CN    [1,1'-Biphenyl]-4-ol, 3,4',5-tris(1,1-dimethylethyl)- (9CI)  (CA INDEX
      NAME)
```



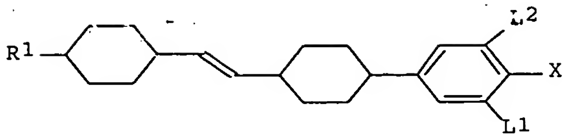
```
=> d his nofil

     (FILE 'HOME' ENTERED AT 15:53:28 ON 29 DEC 2006)

     FILE 'HCAPLUS' ENTERED AT 15:53:38 ON 29 DEC 2006
                E US2005-530572/APPS
L1            1 SEA ABB=ON  PLU=ON  US2005-530572/AP
                SEL RN

     FILE 'REGISTRY' ENTERED AT 15:53:52 ON 29 DEC 2006
L2           21 SEA ABB=ON  PLU=ON  (102714-93-2/BI OR 104197-13-9/BI OR
                106349-49-9/BI OR 1139-52-2/BI OR 121-43-7/BI OR 121219-85-0/BI
                 OR 133914-49-5/BI OR 133937-72-1/BI OR 135734-59-7/BI OR
                135734-60-0/BI OR 137528-82-6/BI OR 137528-84-8/BI OR 153429-47
                -1/BI OR 6169-06-8/BI OR 679436-57-8/BI OR 679436-58-9/BI OR
                679436-59-0/BI OR 76802-59-0/BI OR 76802-61-4/BI OR 81711-13-9/
                BI OR 84816-56-8/BI)

     FILE 'HCAPLUS' ENTERED AT 15:56:37 ON 29 DEC 2006
L3            1 SEA ABB=ON  PLU=ON  L1 AND L2
                D IALL HITSTR

     FILE 'REGISTRY' ENTERED AT 15:57:42 ON 29 DEC 2006
                E PHENOL/CN
L4            1 SEA ABB=ON  PLU=ON  PHENOL/CN
                D SCA
L5              STR
L6           50 SEA SSS SAM L5
L7              STR L5
L8           50 SEA SSS SAM L7
L9              STR L7
L10          50 SEA SSS SAM L9
L11             STR
L12           0 SEA SSS SAM L11
L13             STR L11
L14           0 SEA SSS SAM L13
L15           2 SEA SSS FUL L13
L16           2 SEA ABB=ON  PLU=ON  L15/COM
                D SCA
L17           0 SEA ABB=ON  PLU=ON  L2 AND L16
                D QUE L13
L18             STR L13
L19          50 SEA SSS SAM L18
L20             STR L18
L21          16 SEA SSS SAM L20
L22         377 SEA SSS FUL L20

     FILE 'HCAPLUS' ENTERED AT 16:58:36 ON 29 DEC 2006
L23         576 SEA ABB=ON  PLU=ON  L22

     FILE 'REGISTRY' ENTERED AT 16:58:51 ON 29 DEC 2006
L24           1 SEA ABB=ON  PLU=ON  L22 AND L2
                D SCA
                SAV TEMP L24CHO572/A L24
L25             STR
L26          50 SEA SSS SAM L25
L27           3 SEA SUB=L22 SSS SAM L25
```

```
L28            76 SEA SUB=L22 SSS FUL L25

     FILE 'HCAPLUS' ENTERED AT 17:11:37 ON 29 DEC 2006
L29           409 SEA ABB=ON  PLU=ON  L28

     FILE 'REGISTRY' ENTERED AT 17:11:44 ON 29 DEC 2006
L30             1 SEA ABB=ON  PLU=ON  L28 AND C28H38O5/MF

     FILE 'HCAPLUS' ENTERED AT 17:12:51 ON 29 DEC 2006
L31               ANALYZE PLU=ON  L29 1-409 RN :    4553 TERMS
                  D

     FILE 'REGISTRY' ENTERED AT 17:13:18 ON 29 DEC 2006
L32             0 SEA ABB=ON  PLU=ON  4221-80-1D SCA
L33             1 SEA ABB=ON  PLU=ON  4221-80-1
                  D SCA
L34            75 SEA ABB=ON  PLU=ON  L28 NOT L33

     FILE 'HCAPLUS' ENTERED AT 17:13:44 ON 29 DEC 2006
L35           127 SEA ABB=ON  PLU=ON  L34
L36               ANALYZE PLU=ON  L35 1-127 RN :    2620 TERMS
                  D

     FILE 'REGISTRY' ENTERED AT 17:14:05 ON 29 DEC 2006
L37             1 SEA ABB=ON  PLU=ON  35439-93-1
                  D SCA
L38            74 SEA ABB=ON  PLU=ON  L34 NOT L37

     FILE 'HCAPLUS' ENTERED AT 17:14:27 ON 29 DEC 2006
L39            59 SEA ABB=ON  PLU=ON  L38
L40               ANALYZE PLU=ON  L39 1-59 RN :    1857 TERMS
                  D

     FILE 'REGISTRY' ENTERED AT 17:14:46 ON 29 DEC 2006
L41             1 SEA ABB=ON  PLU=ON  9003-07-0
                  D SCA
L42             1 SEA ABB=ON  PLU=ON  L38 AND C57H77NO8/MF
L43            73 SEA ABB=ON  PLU=ON  L38 NOT L42
L44            72 SEA ABB=ON  PLU=ON  L43 NOT C25H26N2O3
L45             1 SEA ABB=ON  PLU=ON  L43 AND C25H26N2O3/MF
L46            72 SEA ABB=ON  PLU=ON  L43 NOT L45
L47             1 SEA ABB=ON  PLU=ON  L46 AND C47H71NO3/MF
L48            71 SEA ABB=ON  PLU=ON  L46 NOT L47
L49             1 SEA ABB=ON  PLU=ON  L48 AND C32H48O3/MF
                  D SCA
L50            70 SEA ABB=ON  PLU=ON  L48 NOT L49
L51             4 SEA ABB=ON  PLU=ON  L50 AND C29H42O3/MF
                  D SCA
L52            66 SEA ABB=ON  PLU=ON  L50 NOT L51
L53             0 SEA ABB=ON  PLU=ON  L52 AND C23H34NO3P/ELS
L54             2 SEA ABB=ON  PLU=ON  L52 AND C23H34NO3P/MF
                  D SCA
L55            64 SEA ABB=ON  PLU=ON  L52 NOT L54
L56             1 SEA ABB=ON  PLU=ON  L55 AND C38H59NO4/MF
L57            63 SEA ABB=ON  PLU=ON  L55 NOT L56
L58             1 SEA ABB=ON  PLU=ON  L57 AND NI/ELS
                  D SCA
L59            62 SEA ABB=ON  PLU=ON  L57 NOT L58
L60             1 SEA ABB=ON  PLU=ON  L59 AND IDS/CI
                  D SCA
```

```
L61            61 SEA ABB=ON  PLU=ON  L59 NOT L60
L62             3 SEA ABB=ON  PLU=ON  L61 AND C31H46O3/MF
                  D SCA
L63            58 SEA ABB=ON  PLU=ON  L61 NOT L62
L64             1 SEA ABB=ON  PLU=ON  L63 AND C35H52O5/MF
L65            57 SEA ABB=ON  PLU=ON  L63 NOT L64
L66             1 SEA ABB=ON  PLU=ON  L65 AND C26H36O3/MF
L67            56 SEA ABB=ON  PLU=ON  L65 NOT L66
L68             5 SEA ABB=ON  PLU=ON  L67 AND C30H44O3/MF
                  D SCA
                  E BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4-HYDROXY-, 2-METHYL
L69             1 SEA ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4
                  -HYDROXY-, 2-METHYL-4,6-BIS(1-METHYLPROPYL)PHENYL ESTER"/CN
L70            51 SEA ABB=ON  PLU=ON  L67 NOT L68
L71            52 SEA ABB=ON  PLU=ON  L69 OR L70
L72             3 SEA ABB=ON  PLU=ON  L52 AND C>90
                  D SCA
L73            49 SEA ABB=ON  PLU=ON  L71 NOT L72
L74             3 SEA ABB=ON  PLU=ON  L73 AND C33H50O3/MF
                  D SCA
                  E BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4-HYDROXY-, 2,4,6-TR
L75             1 SEA ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4
                  -HYDROXY-, 2,4,6-TRIS(1-METHYLPROPYL)PHENYL ESTER"/CN
L76            46 SEA ABB=ON  PLU=ON  L73 NOT L74
L77            47 SEA ABB=ON  PLU=ON  L75 OR L76
L78             1 SEA ABB=ON  PLU=ON  L77 AND C25H34O3/MF
L79            46 SEA ABB=ON  PLU=ON  L77 NOT L78
L80             1 SEA ABB=ON  PLU=ON  L79 AND C24H26F3NO/MF
L81            45 SEA ABB=ON  PLU=ON  L79 NOT L80
L82             1 SEA ABB=ON  PLU=ON  L81 AND C24H26F3NO2/MF
L83            44 SEA ABB=ON  PLU=ON  L81 NOT L82
L84             1 SEA ABB=ON  PLU=ON  L83 AND C29H40O5/MF
                  D SCA
L85            43 SEA ABB=ON  PLU=ON  L83 NOT L84
L86             1 SEA ABB=ON  PLU=ON  L85 AND C23H32O/MF
L87            42 SEA ABB=ON  PLU=ON  L85 NOT L86
L88             1 SEA ABB=ON  PLU=ON  L87 AND MN/ELS
L89            41 SEA ABB=ON  PLU=ON  L87 NOT L88
L90             1 SEA ABB=ON  PLU=ON  L89 AND C24H34O2/MF
L91            40 SEA ABB=ON  PLU=ON  L89 NOT L90
L92             1 SEA ABB=ON  PLU=ON  L91 AND C28H42O2/MF
L93            39 SEA ABB=ON  PLU=ON  L91 NOT L92
L94             2 SEA ABB=ON  PLU=ON  L93 AND TI/ELS
                  D SCA
L95            37 SEA ABB=ON  PLU=ON  L93 NOT L94
L96             1 SEA ABB=ON  PLU=ON  L95 AND C28H38O5/MF
L97            36 SEA ABB=ON  PLU=ON  L95 NOT L96
L98             1 SEA ABB=ON  PLU=ON  L97 AND C21H25F3O/MF
L99            35 SEA ABB=ON  PLU=ON  L97 NOT L98
L100           33 SEA ABB=ON  PLU=ON  L99 NOT C27H38O3/MF
L101            2 SEA ABB=ON  PLU=ON  L99 AND C27H38O3/MF
                  D SCA
                  E BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4-HYDROXY-, 2,6-DIME
L102            1 SEA ABB=ON  PLU=ON  "BENZOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4
                  -HYDROXY-, 2,6-DIMETHYL-4-(1-METHYLPROPYL)PHENYL ESTER"/CN
L103           34 SEA ABB=ON  PLU=ON  L102 OR L100

     FILE 'HCAPLUS' ENTERED AT 17:34:44 ON 29 DEC 2006
L104           24 SEA ABB=ON  PLU=ON  L103
```

```
FILE 'HCAPLUS' ENTERED AT 17:35:03 ON 29 DEC 2006
               D QUE L104
               D L104 IBIB ABS ED HITSTR TOT
```

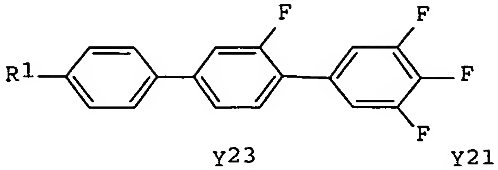
```
=> d his

     (FILE 'HOME' ENTERED AT 10:17:16 ON 03 JAN 2007)

     FILE 'HCAPLUS, MEDLINE, EMBASE, BIOSIS, WPIX' ENTERED AT 10:17:36 ON 03
     JAN 2007
                E REIFFENRATH V/AU
L1          476 S E3-4
                E HECKMEIER M/AU
L2          292 S E3-5
L3           46 S L1 AND L2
L4          113 S L1-2 AND CHIRAL
L5           30 S L1-2 AND PHENOL
L6            8 S L4 AND L5
L7           52 S L3 OR L6
L8           35 DUP REM L7 (17 DUPLICATES REMOVED)

=> d l8 bib abs tot

L8   ANSWER 1 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 1
AN   2004:1037203  HCAPLUS  Full-text
DN   142:13838
TI   Liquid-crystalline medium showing improved physical properties for liquid
     crystal display
IN   Heckmeier, Michael; Reiffenrath, Volker; Saito, Izumi
PA   Merck Patent G.m.b.H., Germany
SO   PCT Int. Appl., 96 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   WO 2004104137        A1    20041202    WO 2004-EP5234         20040514
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
             LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
             TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
             AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
             EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,
             SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,
             SN, TD, TG
     DE 102004024456      A1    20041209    DE 2004-102004024456   20040514
     EP 1629064           A1    20060301    EP 2004-739214         20040514
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK
     CN 1791659           A     20060621    CN 2004-80013856       20040514
PRAI DE 2003-10322908     A     20030521
     WO 2004-EP5234       W     20040514
OS   MARPAT 142:13838
GI
```



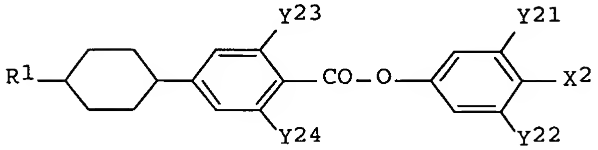
I

```
AB     The invention relates to a liquid-crystalline medium based on a mixture of
       polar compds.  Said medium is characterized in that it contains one or more
       compds. of formula I (R1 = halo, C1-15-alkoxy; X = F, Cl, CN, C1-6-haloalkyl,
       haloalkenyl, haloalkoxy, haloalkenyl; L1, L2 = H, F).  The invention also
       relates to the use of said compds. for electro-optical purposes, in particular
       TN monitor applications.  There are 26 mixture examples.
RE.CNT  24     THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8    ANSWER 2 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 2
AN    2004:992647  HCAPLUS  Full-text
DN    141:429739
TI    Nematic liquid crystal mixture showing improved physical properties for
      liquid crystal display
IN    Heckmeier, Michael; Poetsch, Eike; Reiffenrath, Volker
PA    Merck Patent GmbH, Germany
SO    Ger. Offen., 35 pp.
      CODEN: GWXXBX
DT    Patent
LA    German
FAN.CNT 1
      PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
      ---------------     ----    --------    --------------------   --------
PI    DE 102004019901      A1     20041118    DE 2004-102004019901   20040421
PRAI  DE 2003-10318362     IA     20030423
OS    MARPAT 141:429739
AB     The title liquid crystal mixture comprises (a) 20-80 % of liquid crystal
       compds. having optical birefringence of Δn ≤0.08 and dielec. anisotropy of Δε
       ≥11, (b) 15-60 % of liquid crystal compds. having optical birefringence of Δn
       ≥0.12 and dielec. anisotropy of Δε ≥15, (c) 5-45 % of liquid crystal compds.
       with dielec. anisotropy Δε of -1.5 to 2, and (d) 0-40 % of other liquid
       crystal compds.


L8    ANSWER 3 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 3
AN    2004:962836  HCAPLUS  Full-text
DN    141:403630
TI    Liquid crystal mixture showing improved physical properties suitable for
      liquid crystal display
IN    Heckmeier, Michael; Reiffenrath, Volker; Poetsch, Eike
PA    Merck Patent GmbH, Germany
SO    Ger. Offen., 21 pp.
      CODEN: GWXXBX
DT    Patent
LA    German
FAN.CNT 1
      PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
      ---------------     ----    --------    --------------------   --------
PI    DE 102004015200      A1     20041111    DE 2004-102004015200   20040329
```

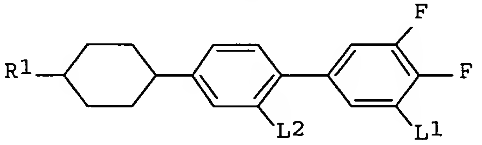
PRAI DE 2003-10318361 IA 20030423
OS MARPAT 141:403630
GI



I



II



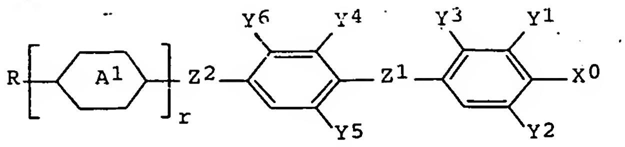
III

AB The title liquid crystal mixture comprises (a) 15-50 % of one or more liquid crystal compds. represented by I [R1 = C1-7-alkyl], (b) 5-30 % of one or more liquid crystal compds. represented by II [R1 = C1-7-alkyl; X2 = F, Cl, -OCF2; Y21-24 = H, F], (c) 3-35 % of one or more liquid crystal compds. represented by III [R1 = C1-7-alkyl; L1, L2 = H, F], (d) 2-20 % of one or more specific liquid crystal compds. [2 Markush structures are given], (e) 10-45 % of one or more specific liquid crystal compds. [3 Markush structures are given], (f) 0-15 % of one or more specific liquid crystal compds. [1 Markush structure is given], and (g) 0-15 % of one or more specific liquid crystal compds. [1 Markush structure is given]. There are 17 nematic liquid crystal mixture examples.

L8 ANSWER 4 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4
AN 2004:898429 HCAPLUS Full-text
DN 141:372899
TI Liquid crystalline medium with UV stabilizer for TN-, STN-, TN-TFT-, IPS- or VA-liquid crystal display
IN *Heckmeier, Michael; Reiffenrath, Volker*
PA Merck Patent GmbH, Germany
SO Ger. Offen., 51 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 102004012970	A1	20041028	DE 2004-102004012970	20040317
	JP 2004315819	A	20041111	JP 2004-114914	20040409

PRAI DE 2003-10316813 IA 20030411
OS MARPAT 141:372899
GI



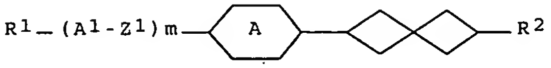
I

AB The title liquid crystalline medium is base on a pos. anisotropic polar compound mixture, wherein the medium contains one or more compds. represented by I (R = C1-15-alkyl, alkenyl; A1 = 1,4-phenylene with F-subsistent(s), trans-1,4-cyclohexylene, etc.; Y1-6 = H, F; Z1 = -CF2O-, -OCF2-, -COO-; Z2 = -O-, -S-, -CO-, -OCO-, etc.; X0 = F, C, C1-6-halogenated alkyl, alkenyl, alkoxy; r = 0, 1) and one or more UV-stabilizers. There are 3 mixture examples.

L8 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5
AN 2004:177986 HCAPLUS Full-text
DN 140:225896
TI Liquid crystal mixture suitable for liquid crystal display
IN ***Heckmeier, Michael***; Poetsch, Eike; ***Reiffenrath, Volker***
PA Merck K.-G.a.A., Germany
SO Ger. Offen., 57 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

```
     PATENT NO.          KIND    DATE        APPLICATION NO.         DATE
     ---------------     ----    --------    --------------------    --------
PI   DE 10338111          A1     20040304    DE 2003-10338111        20030815
     WO 2004026991        A1     20040401    WO 2003-EP8989          20030813
     WO 2004026991        A9     20040916
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
             PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
             TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
             FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     AU 2003255437        A1     20040408    AU 2003-255437          20030813
PRAI DE 2002-10239021     IA     20020820
     WO 2003-EP8989       W      20030813
```

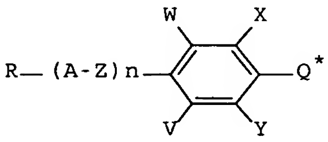
OS MARPAT 140:225896
GI



I

```
AB     The title liquid crystal mixture is based on polar compds. having pos. or neg.
       dielec. anisotropy, wherein the mixture contains one or more compds.
       represented by I (R1 = C1-15-alkyl, alkenyl, etc.; A1 = 1,4-cyclohexenylene,
       1,4-cyclohexylene, etc.; A = 1,4-trans-cyclohexylene, etc.; Z1 = -COO-, -OCO-,
       etc.; R2 = C2-7-alkenyl; m = 0-2).  The mixture shows excellent phys.
       properties suitable for the liquid crystal display.


L8    ANSWER 6 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 6
AN    2004:367211  HCAPLUS  Full-text
DN    140:383193
TI    Chiral dopant with laterally alkylated phenyl structure for liquid crystal
      mixture in liquid crystal display
IN    Reiffenrath, Volker; Heckmeier, Michael
PA    Merck Patent GmbH, Germany
SO    Ger. Offen., 31 pp.
      CODEN: GWXXBX
DT    Patent
LA    German
FAN.CNT 1
      PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
      ---------------     ----   --------    --------------------   --------
PI    DE 10248765          A1    20040506    DE 2002-10248765       20021018
      WO 2004037948        A1    20040506    WO 2003-EP10547        20030923
          W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
              CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
              GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
              LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
              PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
              TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
          RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
              KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
              FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
              BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
      AU 2003270243        A1    20040513    AU 2003-270243         20030923
      EP 1551938           A1    20050713    EP 2003-750601         20030923
      EP 1551938           B1    20060705
          R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
              IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
      JP 2006503100        T     20060126    JP 2004-545778         20030923
      AT 332349            T     20060715    AT 2003-750601         20030923
      US 2006081813        A1    20060420    US 2005-531375         20050415
PRAI DE 2002-10248765      A     20021018
      WO 2003-EP10547      W     20030923
OS    MARPAT 140:383193
GI
```

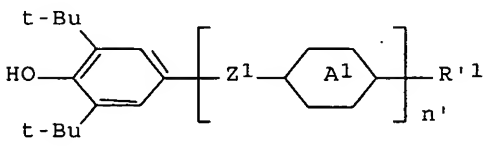
ODP?



I

```
AB     The title chiral dopant is represented by a general formula I (Q* = structure
       with asym. C atom; R = H, C1-12-alkyl, alkenyl, F, Cl; A = single bond, 1,4-
```

```
     phenylene, 1,4-cyclohexylene, 1,4-bicyclo(2.2.2)octanyl; Z = single bond. -
     CH2CH2-, -OCH2-, -CH2O-, -CF2O-, -OCF2-, -CF2CF2-, -C.tplbond.C-; V, W, X, Y
     = C1-12-alkyl, alkoxy, H, F, Cl; n = 1-3). The chiral dopants were
     synthesized and the liquid crystal mixture containing the chiral dopant was
     prepared


L8   ANSWER 7 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 7
AN   2004:307331  HCAPLUS  Full-text
DN   140:347642
TI   Chiral phenol derivative, liquid crystal medium
     containing the same, preparation of the liquid crystal medium and
     electrooptical liquid crystal display
IN   Reiffenrath, Volker; Heckmeier, Michael
PA   Merck Patent GmbH, Germany
SO   Ger. Offen., 42 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
     ---------------     ----    --------    --------------------   --------
PI   DE 10246657          A1     20040415    DE 2002-10246657       20021007
     WO 2004033406        A1     20040422    WO 2003-EP10398        20030918
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
             PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
             TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
             FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     AU 2003283251        A1     20040504    AU 2003-283251         20030918
     EP 1549599           A1     20050706    EP 2003-775161         20030918
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     JP 2006502205        T      20060119    JP 2004-542358         20030918
     US 2006011888        A1     20060119    US 2005-530572         20050407
PRAI DE 2002-10246657     A      20021007
     WO 2003-EP10398      W      20030918
OS   MARPAT 140:347642
GI
```

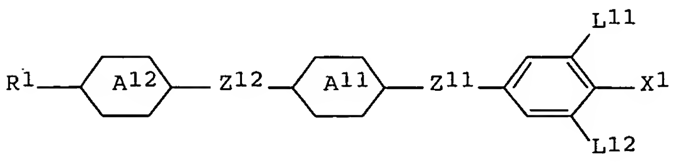


I

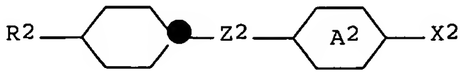
```
AB   The invention relates to a chiral phenol derivative represented by I (R*1 =
     chiral group; Z1 = -CH2CH2-, -CH:CH-, etc.; A1 = trans-1,4-cyclohexylene, 1,4-
     cyclohexenylene, etc.; n1 = 1-3) and a nematic liquid crystal mixture
     containing the chiral phenol derivative as a cholesteric phase inducing chiral
```

dopant and/or stabilizer. The ***chiral phenol*** derivative was synthesized and the nematic liquid crystal mixture was prepared

```
L8   ANSWER 8 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 8
AN   2003:633845  HCAPLUS  Full-text
DN   139:188401
TI   Twisted nematic liquid crystalline medium and liquid crystal display
IN   Heckmeier, Michael; Schoen, Sabine; Kirsch, Peer; Bremer,
     Matthias; Reiffenrath, Volker
PA   Merck Patent Gmbh, Germany
SO   PCT Int. Appl., 81 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.       DATE
     ---------------     ----   --------    --------------------  --------
PI   WO 2003066774        A1    20030814    WO 2003-EP43          20030107
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,
             UG, US, UZ, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
             FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF,
             BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     AU 2003244469        A1    20030902    AU 2003-244469        20030107
     EP 1472325           A1    20041103    EP 2003-737253        20030107
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     US 2005092966        A1    20050505    US 2003-503476        20030107
     JP 2005517079        T     20050609    JP 2003-566129        20030107
     US 7153550           B2    20061226    US 2004-503476        20040804
PRAI EP 2002-2653         A     20020205
     EP 2002-8162         A     20020415
     WO 2003-EP43         W     20030107
OS   MARPAT 139:188401
GI
```

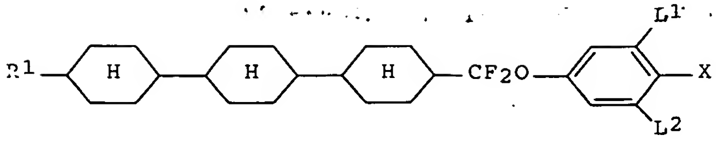


I

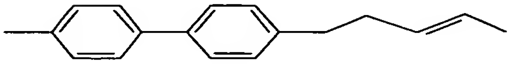


II

```
AB    The instant invention relates to liquid crystalline media comprising a dielec.
      pos. component, component A, consisting of dielec. pos. compds., comprising
      one or more compds. of formula I (R1 = alkyl, alkoxy, alkenyl, etc.; X1 = F,
      Cl, fluorinated alkyl, etc.; A11-12 = 1,4-phenylene, 3-fluoro-1,4-phenylene,
      2,6-difluoro-1,4-phenylene, etc.; Z11-12 = -CH2-CH2-, -CF2-CF2-, -CF2-O-,
      etc.; L11-12 = H, F) and one or more compds. of formula II (R2 = alkyl,
      alkoxy, alkenyl, etc.; A2 = 1,4-cyclohexylene, 1,4-phenylene, 2-fluoro-1,4-
      phenylene, etc.; Z2 = -CH2-CH2-, -CF2-CF2-, -CF2-o-, etc.; X2 = F, Cl,
      fluorinated alkyl, etc..) and to liquid crystal displays comprising these
      media, especially to active matrix displays.  The medium provides a display of
      significantly reduced response time.
RE.CNT  10     THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8   ANSWER 9 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 9
AN   2003:929400  HCAPLUS  Full-text
DN   139:401626
TI   Liquid crystal mixture for TFT active matrix liquid crystal display
IN   Heckmeier, Michael; Schuler, Brigitte; Saito, Izumi;
     Reiffenrath, Volker; Luessem, Georg; Hock, Christian
PA   Merck Patent G.m.b.H., Germany
SO   Eur. Pat. Appl., 49 pp.
     CODEN: EPXXDW
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   EP 1365001           A1    20031126    EP 2003-9677           20030430
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     DE 10223061          A1    20031211    DE 2002-10223061       20020524
     EP 1700897           A2    20060913    EP 2006-13446          20030430
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
     EP 1717293           A2    20061102    EP 2006-13447          20030430
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK
     JP 2004067996        A     20040304    JP 2003-146504         20030523
     US 2004016905        A1    20040129    US 2003-445032         20030527
     US 6827990           B2    20041207
     US 2004245502        A1    20041209    US 2004-885729         20040708
     US 6962733           B2    20051108
     US 2004256600        A1    20041223    US 2004-885730         20040708
     US 6890607           B2    20050510
     US 2004256604        A1    20041223    US 2004-885731         20040708
     US 2004262572        A1    20041230    US 2004-885672         20040708
     US 6964794           B2    20051115
PRAI DE 2002-10223061     A     20020524
     EP 2003-9677         A3    20030430
     US 2003-445032       A3    20030527
OS   MARPAT 139:401626
GI
```

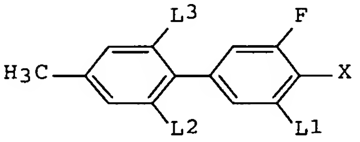

I

```
AB     The invention relates to a nematic liquid crystal mixture showing improved
       phys. properties suitable for a TFT active matrix liquid crystal display,
       wherein the mixture is based on polar compds. having pos. dielec. anisotropy
       and the mixture contains a compound(s) represented by a general formula I (R1
       = C1-15-alkyl, alkoxy; X = F, Cl, CN, halogenated alkenyl, halogenated alkoxy,
       halogenated alkenyloxy with C1-6; L1, L2 = H, F).
RE.CNT  6      THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8    ANSWER 10 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 10
AN    2003:609536  HCAPLUS  Full-text
DN    139:171340
TI    Liquid crystalline medium with higher birefringence and improved UV
      stability
IN    Heckmeier, Michael; Reiffenrath, Volker
PA    Merck Patent Gmbh, Germany
SO    Eur. Pat. Appl., 21 pp.
      CODEN: EPXXDW
DT    Patent
LA    German
FAN.CNT 1
      PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
      ---------------     ----   --------    --------------------   --------
PI    EP 1333082           A1    20030806    EP 2003-2196           20030204
      EP 1333082           B1    20051109
          R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
              IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
      DE 10204607          A1    20030807    DE 2002-10204607       20020205
      AT 309313            T     20051115    AT 2003-2196           20030204
      JP 2003261873        A     20030919    JP 2003-28084          20030205
      US 2003228426        A1    20031211    US 2003-358400         20030205
      US 6808764           B2    20041026
PRAI  DE 2002-10204607     A     20020205
OS    MARPAT 139:171340
GI
```


I

```
AB     The title liquid crystalline medium, suitable for liquid crystal displays,
       comprises 1-30 % of I and other specified compds. (Markush structures are
       given).
RE.CNT  6      THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT
```

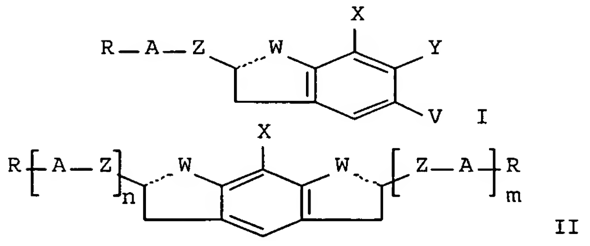
```
L8   ANSWER 11 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 11
AN   2003:373828  HCAPLUS  Full-text
DN   138:376531
TI   Fluorinated biphenyl compounds and their use in liquid crystal
     compositions for liquid crystal displays
IN   Reiffenrath, Volker; Heckmeier, Michael; Engel,
     Martin; Schuler, Brigitte
PA   Merck Patent G.m.b.H., Germany
SO   Eur. Pat. Appl., 84 pp.
     CODEN: EPXXDW
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND    DATE         APPLICATION NO.        DATE
     ---------------     ----    --------     --------------------   --------
PI   EP 1310474           A1     20030514     EP 2002-24495          20021030
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
     DE 10250844          A1     20030522     DE 2002-10250844       20021031
     US 2003186002        A1     20031002     US 2002-290292         20021108
     US 7033652           B2     20060425
     JP 2003201477        A      20030718     JP 2002-326451         20021111
PRAI DE 2001-10155079     A      20011109
OS   MARPAT 138:376531
GI
```



I

```
AB    The invention relates to a liquid crystal medium based on a pos. or neg.
      dielec. anisotropic polar compound mixture, wherein the liquid crystal medium
      includes one or more of compds. represented by I (X = F, Cl, CN, SF5, NCS,
      halogenated C1-8-alkyl; L1-3 = H, F).  The above compds. were synthesized and
      the liquid crystal mixts. were prepared
RE.CNT  5     THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8   ANSWER 12 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 12
AN   2003:74059  HCAPLUS  Full-text
DN   138:145162
TI   Indane compound with negative dielectric anisotropy for VA (vertical
     align) type liquid crystal display
IN   Bremer, Matthias; Heckmeier, Michael; Reiffenrath,
     Volker
PA   Merck Patent GmbH, Germany
SO   Ger. Offen., 20 pp.
     CODEN: GWXXBX
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND    DATE         APPLICATION NO.        DATE
```

```
     ---------------         ----    --------     -------------- ------   --------
PI   DE 10135499             A1      20030130     DE 2001-10135499        20010720
     TW 243810               B       20051121     TW 2002-91116042        20020718
     WO 2003010120           A1      20030206     WO 2002-EP8085          20020719
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
             CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
             NE, SN, TD, TG
     EP 1409441              A1      20040421     EP 2002-767236          20020719
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
     CN 1507427              A       20040623     CN 2002-809390          20020719
     JP 2004536140           T       20041202     JP 2003-515482          20020719
     US 2004171866           A1      20040902     US 2004-484193          20040120
     US 7122228              B2      20061017
PRAI DE 2001-10135499        A       20010720
     WO 2002-EP8085          W       20020719
OS   MARPAT 138:145162
GI
```

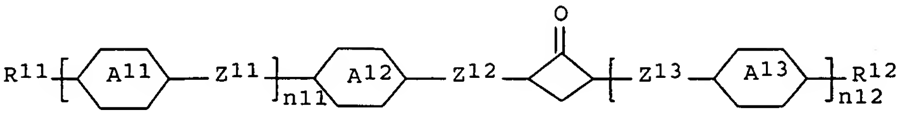


```
AB   The invention relates to an indane compound with neg. Δε represented by the
     formula I or II (R = C1-12-alkyl, alkoxy, C2-12-oxaalkyl, alkenyl, alkenyloxy,
     C3-12-oxaalkenyl; A =. cis-1,4-cyclohexylene, trans-1,4-cyclohexylene, 1,4-
     phenylene, 1,4-cyclohexyl-3-enylene; Z = single bond, -CH2CH2-, -CH:CH-, -
     C.tplbond.C-, -OCH2-, -CH2O-; X = F, Cl, CN, NCS, CF3, OCF3, OCHF2; n, m = 0-
     4). The compound is particularly suitable for the production of VA TFT
     displays.

L8   ANSWER 13 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 13
AN   2002:272781  HCAPLUS  Full-text
DN   136:316990
TI   Mesogenic liquid crystal compound, nematic liquid crystal mixture showing
     negative dielectric anisotropy, and plasma addressed liquid crystal
     display
IN   Reuter, Marcus; Heckmeier, Michael; Reiffenrath, Volker
PA   Merck Patent G.m.b.H., Germany
```

SO Ger. Offen., 50 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10141565	A1	20020411	DE 2001-10141565	20010824
	US 2003006399	A1	20030109	US 2001-960723	20010924
	US 6641871	B2	20031104		
PRAI	DE 2000-10047059	IA	20000922		

OS MARPAT 136:316990
GI



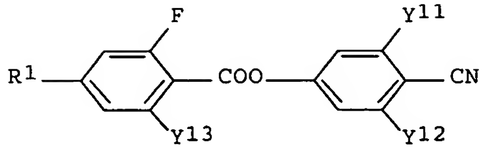
I

AB The title new liquid crystal compound is represented by I (R11, R12 = H, C1-15-alkyl; Z11, Z12, Z13 = -CH2CH2-, -CH:CH-, -C.tplbond.C-, -COO-, -OCO-, -CH2O-, _CH2-, -CF2O-, -OCF2-, -(CH2)4-, -CF:CF-, -CH:CF-, -CF:CH-, single bond; A11, A12, A13 = trans-1,4-cyclohexyl, 1,4-cyclohexenyl, 1,4-Ph, 1,4-bicyclo-(2,2,2)-otylene, piperidine-1,4-diyl, naphthalene-2,6-diyl, decahydronaphthalene-2,6-diyl, 1,2,3,4- tetrahydronaphthalene-2,6-diyl; n11, n12 = 0, 1, 2). The nematic liquid crystal mixture containing the above liquid crystal shows improved phys. properties suitable for the plasma addressed liquid crystal display.

L8 ANSWER 14 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 14
AN 2001:903386 HCAPLUS Full-text
DN 136:45782
TI Nematic liquid crystal medium for electrooptical liquid crystal display with reorientation layer
IN ***Heckmeier, Michael***; Reuter, Marcus; ***Reiffenrath, Volker***
PA Merck Patent G.m.b.H., Germany
SO Ger. Offen., 26 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10112954	A1	20011213	DE 2001-10112954	20010317
	JP 2001354962	A	20011225	JP 2001-119760	20010418
	US 2003224125	A1	20031204	US 2001-836860	20010418
	US 6761938	B2	20040713		
PRAI	DE 2000-10019061	A1	20000418		

OS MARPAT 136:45782
GI



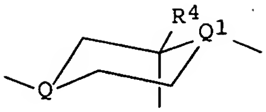
I

AB The invention relates to an IPS (in-plane switching) electrooptical liquid crystal display which contains one or more mesogen compds. represented by I (R1 = H, C1-7-alkyl, alkoxy, C2-7-alkenyl, alkenyloxy, alkoxyalkyl; Y11, Y12, Y13 = H, F) in a liquid crystal medium showing pos. dielec. anisotropy. The IPS liquid crystal display shows excellent contrast.

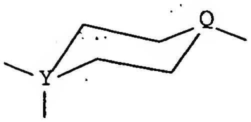
L8 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 15
AN 2000:383663 HCAPLUS Full-text
DN 133:30533
TI Cross-bridged cyclohexane derivatives and liquid crystal medium
IN ***Reiffenrath, Volker***; ***Heckmeier, Michael***; Bremer, Matthias
PA Merck Patent G.m.b.H., Germany
SO Eur. Pat. Appl., 103 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1006098	A2	20000607	EP 1999-123223	19991125
	EP 1006098	A3	20001122		
	EP 1006098	B1	20040407		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 19855757	A1	20000621	DE 1998-19855757	19981203
	JP 2000169403	A	20000620	JP 1999-344606	19991203
	US 6203724	B1	20010320	US 1999-453538	19991203
PRAI	DE 1998-19855757	A	19981203		

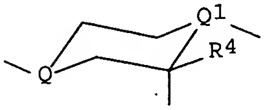
OS MARPAT 133:30533
GI



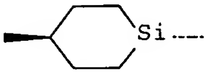
I



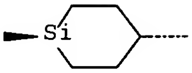
II



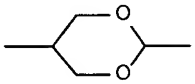
III



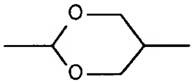
IV



V



VI



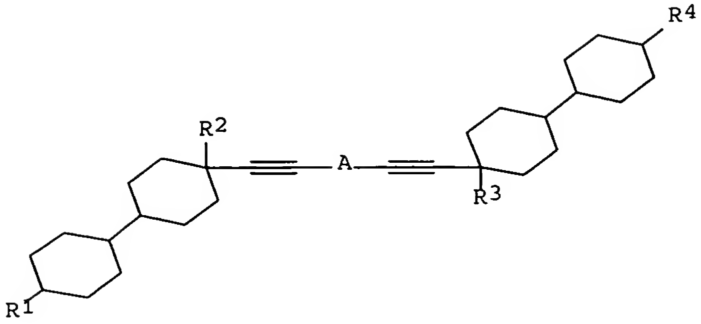
VII

AB Cyclohexane derivs. are claimed which are described by the general formula (R-(A-Z)m)(R1-(A1-Z1)n)B-Xp-B1((Z2-A2)r-R2)((Z3-A3)s-R3) (B, B1 = independently selected from I, II, or III in which 1 or 2 nonadjacent CH2 groups may be replaced by O, the rings being bound to the Xp groups via an axial bond; Y = C or Si; Q, Q1 = independently selected Ch or SiH; X = independently selected for each repetition -C.tplbond.C-, -CH:CH-, -CF:CF-, -CF:CH-, -CH2, -COO-, or 1,4-phenylene in which ≥1 CH group may be replaced by N or CF; p = 1-4; R, R1-4 = independently selected H and C1-12 alkyl groups which may have a single halogen substituent and in which ≥1 CH group may be replaced by -O-, -S-, -CO-, 1,3-cyclobutyl, -CO-O-, -O-CO-, -O-CO-O-, or -CH:CH- so arranged that they are not directly bound to a heteroatom, CN, F, -CF3, -OCF3, -OCF2, -OCHFCF3, -OCH2CF3, -OCF2CF3, or -OCH:CF2; A, A1-3 = optionally substituted 1,4-cyclohexyl, IV, V, VI, VII, or 1,4-phenylene in which 1 or 2 CH groups may be replaced by N; Z, Z1-3 = independently selected single bonds, -CO-O-, -O-CO-, -CH2O-, -OCH2, -CH:CH-, -O-, C2-4 alkyl, -OCF2, or -CF2CF2-; and n, m, r, s = 0-2). Use of the derivs. as components of liquid crystal mixts. is described, as is their use as precursors for liquid crystal polymers. Liquid crystal media, liquid crystal displays, optical switches, and optical filters employing the materials are also described.

L8 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 16
AN 2000:396635 HCAPLUS Full-text
DN 133:51347
TI Liquid crystalline medium
IN ***Heckmeier, Michael***; Schuler, Brigitte; ***Reiffenrath, Volker***
PA Merck Patent G.m.b.H., Germany
SO Ger. Offen., 24 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19959723	A1	20000615	DE 1999-19959723	19991210
	US 6171665	B1	20010109	US 1999-459875	19991214
PRAI	DE 1998-19857504	A1	19981214		

OS MARPAT 133:51347
GI



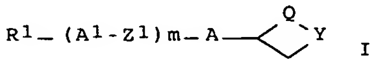
I

AB Liquid crystal media based on mixts. of polar compds. having pos. dielec. anisotropies are described which contain ≥1 of the compds. described by the general formula I (R1-4 = independently selected unsubstituted, singly substituted with a CN or or CF3 group, or substituted with ≥1 halogen C1-12 alkyl or Alkenyl group in which ≥1 CH2 groups may be independently replaced by -O-, -S-, 1,3-cyclobutyl, -CO-, -CO-O-, -O-CO-, or -O-CO-O-, with the restriction that O atoms may not be directly bound to each other; and A = 1,4-phenylene in which 1 or 2 nonadjacent CH groups may be relaced by N, 2,3-difluoro-1,4-phenylene, 2-fluoro-1,4-phenylene, 3-fluoro-1,4- phenylene, or a single bond). Use of the media for electrooptical applications, especially reflective matrix liquid crystal displays, and electrooptical liquid crystal displays employing the media are also described.

L8 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 17
AN 2000:366136 HCAPLUS Full-text
DN 133:24765
TI Cyclobutane derivative and liquid crystal material containing the same for liquid crystal display
IN *Reiffenrath, Volker; Heckmeier, Michael*
PA Merck Patent G.m.b.H., Germany
SO Ger. Offen., 46 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

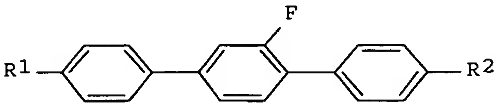
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19955932	A1	20000531	DE 1999-19955932	19991120
PRAI	DE 1998-19854710	A1	19981126		

OS MARPAT 133:24765
GI



I

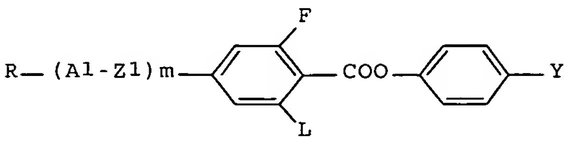
```
AB    The invention relates to the new cyclobutane derivative represented by general
      formula I (R1 = H, CN, F, OCHF2, OCF3, OCHFCF3, OCH2CF3, OCF2CF3, C1-12-alkyl;
      Q = C:O, CCl2, CF2, C:CX1X2; X1, X2 = H, Cl, F; Y = CHR2, CCl2, CF2, C:CHR2;
      R2 = H, C1-12-alkyl; A, A1 = trans-1,4-cyclohexylene, 1,4-phenylene, 1,4-
      bicyclo-(2,2,2)-octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl,
      decahydronaphthalene-2,6-diyl, 1,2,3,4- tetrahydronaphthalene-2,6-diyl; 1,4-
      cyclohexenylene; Z1 = COO, OCO, CH2O, O, OCH2, CH2CH2, CH:CH, C.tplbond.C,
      single bond; m = 1-3).


L8   ANSWER 18 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN   2005:74172  HCAPLUS  Full-text
DN   142:144370
TI   Liquid-crystal medium containing monofluoroterphenyl compounds for liquid
     crystal display
IN   Manabe, Atsutaka; Durmaz, Erdal; Poetsch, Eike; Reiffenrath,
     Volker; Heckmeier, Michael
PA   Merck Patent G.m.b.H., Germany
SO   PCT Int. Appl., 134 pp.
     CODEN: PIXXD2
DT   Patent
LA   German
FAN.CNT 1
     PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
     ---------------     ----   --------   --------------------  --------
PI   WO 2005007775        A1    20050127   WO 2004-EP6777        20040623
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
             LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
             TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
             AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
             EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,
             SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,
             SN, TD, TG
     DE 102004030315      A1    20050127   DE 2004-102004030315  20040623
     EP 1646703           A1    20060419   EP 2004-740199        20040623
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK
     CN 1823151           A     20060823   CN 2004-80019888      20040623
PRAI DE 2003-10331490     A     20030711
     WO 2004-EP6777       W     20040623
OS   MARPAT 142:144370
GI
```



I

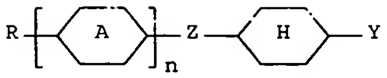
```
AB    The invention relates to a liquid-crystal medium based on a polar compound
      mixture having a pos. or neg. dielec. anisotropy containing at least one type
```

```
          of monofluoroterphenyl compound of general formula I (R1, R2 - H, C1-12-
          alkyl). There are 119 liquid crystal mixture examples.  The use of the
          inventive medium for electro-optical engineering and electro-optical display
          devices containing said medium are also disclosed.
RE.CNT  17     THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8     ANSWER 19 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN     2001:265539  HCAPLUS  Full-text
DN     134:303131
TI     Liquid crystalline phenol esters and liquid crystal mixture suitable for
       liquid crystal display
IN     Reiffenrath, Volker; Heckmeier, Michael; Poetsch,
       Eike; Krause, Joachim; Binder, Werner; Schuler, Brigitte; Goetz, Achim
PA     Merck Patent G.m.b.H., Germany
SO     PCT Int. Appl., 72 pp.
       CODEN: PIXXD2
DT     Patent
LA     German
FAN.CNT 1
       PATENT NO.           KIND   DATE         APPLICATION NO.         DATE
       ---------------      ----   --------     --------------------    --------
PI     WO 2001025370         A1    20010412     WO 2000-EP9133          20000918
           W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,
               CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
               IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
               MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
               SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
           RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
               DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
               CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
       DE 19947954           A1    20010412     DE 1999-19947954        19991006
       EP 1255799            A1    20021113     EP 2000-967700          20000918
       EP 1255799            B1    20061102
           R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
               IE, SI, LT, LV, FI, RO, MK, CY, AL
       JP 2003511390         T     20030325     JP 2001-528527          20000918
       AT 344310             T     20061115     AT 2000-967700          20000918
       TW 507003             B     20021021     TW 2000-89120480        20001002
       US 2005205843         A1    20050922     US 2005-128314          20050513
       US 2006284139         A1    20061221     US 2006-509018          20060824
PRAI   DE 1999-19947954      A     19991006
       WO 2000-EP9133        W     20000918
       US 2002-89975         A3    20020408
       US 2005-128314        A3    20050513
OS     MARPAT 134:303131
GI
```



I

```
AB     The invention relates to liquid crystalline phenol esters of formula I (R =
       C≤15-alkyl, alkenyl; A1 = 1,4-cyclohexenylene, 1,4-cyclohexylene, 1,4-
       phenylene, piperidine-1,4-diyl, etc.; Z1 = CO2, OCO, CF2O, OCF2, CH2O, OCH2,
       CH2CH2, C2F4, CH:CH, C.tplbond.C, single bond; Y = F, Cl, CN, halogenated-C1-
       5-alkyl, alkenyl, alkenyloxy, alkoxy; L = H, F; m = 0-3). The invention also
       relates to liquid crystalline mediums containing at least one phenol ester of
       formula (I) and to electro-optical displays containing such a liquid
       crystalline medium.
RE.CNT  5      THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
               ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8     ANSWER 20 OF 35  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN     2000:441891  HCAPLUS  Full-text
DN     133:81646
TI     Liquid crystal medium for liquid crystal display
IN     Heckmeier, Michael; Schuler, Brigitte; Tarumi, Kazuaki; Kirsch,
       Peer; Reiffenrath, Volker
PA     Merck Patent G.m.b.H., Germany
SO     PCT Int. Appl., 81 pp.
       CODEN: PIXXD2
DT     Patent
LA     German
FAN.CNT 1
       PATENT NO.          KIND   DATE          APPLICATION NO.        DATE
       ---------------     ----   --------      --------------------   --------
PI     WO 2000037586        A1    20000629      WO 1999-EP9919         19991214
           W:  AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,
               DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
               JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,
               MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
               TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW
           RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
               DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
               CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
       DE 19859421          A1    20000629      DE 1998-19859421       19981222
       EP 1144548           A1    20011017      EP 1999-968797         19991214
       EP 1144548           B1    20040825
           R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
               IE, FI
       JP 2002533526        T     20021008      JP 2000-589645         19991214
       US 6793983           B1    20040921      US 2001-868866         20010621
       US 2004245501        A1    20041209      US 2004-882192         20040702
       US 6951669           B2    20051004
       US 2004251447        A1    20041216      US 2004-882190         20040702
       US 7026020           B2    20060411
       US 2005006437        A1    20050113      US 2004-882191         20040702
       US 7081280           B2    20060725
       US 2005035330        A1    20050217      US 2004-882308         20040702
       US 6953610           B2    20051011
       US 2005035329        A1    20050217      US 2004-882309         20040702
       US 7033654           B2    20060425
PRAI   DE 1998-19859421     A     19981222
       WO 1999-EP9919       W     19991214
       US 2001-868866       A3    20010621
OS     MARPAT 133:81646
GI
```


I

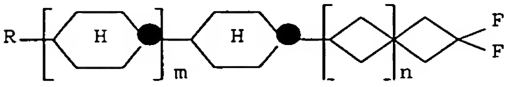
AB The invention relates to a liquid crystal medium based on a mixture of polar compds. having pos. dielec. anisotropy, wherein the medium contains one or more compds. of general formula I (R = H, C1-15-alkyl, alkenyl; A = trans-1,4-cyclohexylene, cyclohexenylene; Y = halogenated C≤6-alkyl, halogenated C≤6-alkenyl, halogenated C≤6-alkoxy, halogenated C≤6-alkenyloxy; Z = -CH2O-, -OCH2-, -CH2CH2-, -CH:CH-, -CF2O-, -OCF2-, -C2F4-, single bond; n = 1, 2).

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:252171 HCAPLUS Full-text
DN 132:286390
TI Liquid crystal for reflective liquid crystal display
IN Poetsch, Eike; Schuler, Brigitte; ***Heckmeier, Michael***; ***Reiffenrath, Volker***; Binder, Werner; Krause, Joachim
PA Merck Patent G.M.B.H., Germany
SO Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000109840	A	20000418	JP 1999-276095	19990929
	DE 19945889	A1	20000427	DE 1999-19945889	19990924
	US 6146719	A	20001114	US 1999-407940	19990925
PRAI	DE 1998-19844498	A	19980929		

OS MARPAT 132:286390
GI


I

AB The liquid crystal is made from a mixture of polar compound I (R = C2-15 alkyl, alkenyl; m = 0, 1; m=n = 1, 2, 3) of pos. dielec. anisotropy. The liquid crystal shows the high specific resistance, the low threshold voltage, and the low complex refractive index.

L8 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:505959 HCAPLUS Full-text
DN 131:136870
TI Liquid crystal composition containing substituted phenol and method for adjusting resistance
IN Darius, Michael; ***Reiffenrath, Volker***; Tarumi, Kazuaki; Rieger,

```
         Bernhard; Heckmeier, Michael; Reuter, Marcus; Kirsch, Peer
PA       Merck Patent G.m.b.H., Germany
SO       Ger. Offen., 38 pp.
         CODEN: GWXXBX
DT       Patent
LA       German
FAN.CNT 1
         PATENT NO.          KIND    DATE        APPLICATION NO.         DATE
         ---------------     ----    --------    --------------------    --------
PI       DE 19903746          A1     19990805    DE 1999-19903746        19990130
         TW 239997            B      20050921    TW 1999-88101509        19990201
         US 6139925           A      20001031    US 1999-243803          19990203
         GB 2334031           A      19990811    GB 1999-2542            19990204
         GB 2334031           B      20030611
         JP 11302652          A      19991102    JP 1999-27065           19990204
         US 2002084444        A1     20020704    US 2001-907654          20010719
PRAI     DE 1998-19804300     A1     19980204
         DE 1998-19805912     A1     19980213
         DE 1998-19851805     A1     19981111
         DE 1999-19902606     A1     19990123
         US 2000-658112       A1     20000908
OS       MARPAT 131:136870
AB        A liquid crystal mixture with sp. resistance contains 10 ppm to <10% acid
          compound, especially a phenol.  The phenol has specified substitution with
          cyclic, acidic, and saturated and unsatd. alkyl groups, F and other groups,
          e.g., 2-cyano-3-fluoro-5-(4-n-propyl-trans-cyclohexyl)phenol.  The use of the
          mixture in liquid crystal displays and the displays are also claimed.  The
          resistance of the mixture is adjusted by addition of the acid compound


L8       ANSWER 23 OF 35  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
AN       2006-671834 [70]    WPIX  Full-text
CR       2004-216107
DNC      C2006-205900 [70]
DNN      N2006-535915 [70]
TI       Liquid crystal medium, useful for electro-optics, comprises a mixture of
         cyclohexane compounds with positive dielectric anisotropy and one or more
         alkyl cyclohexane compounds
DC       E19; L03; U11; V07
IN       HECKMEIER M; HOCK C; LUESSEM G; REIFFENRATH V; SAITO
         I; SCHULER B
PA       (MERE-C) MERCK PATENT GMBH
CYC      31
PIA      EP 1700897       A2 20060913 (200670)* DE  47[0]
ADT      EP 1700897 A2 Div Ex EP 2003-9677 20030430; EP 1700897 A2 EP 2006-13446
         20030430
FDT      EP 1700897       A2 Div ex EP 1365001       A
PRAI     DE 2002-10223061      20020524
AN       2006-671834 [70]    WPIX  Full-text
CR       2004-216107
AB        EP 1700897 A2    UPAB: 20061101
           NOVELTY - Liquid crystal medium (A) comprises a mixture of cyclohexane
          compounds (I) with positive dielectric anisotropy and one or more alkyl
          cyclohexane compounds (II) and (III).
                 DETAILED DESCRIPTION - Liquid crystal medium (A) comprising a mixture
          of cyclohexane compounds of formula (I) with positive dielectric anisotropy
          and one or more alkyl cyclohexane compounds of formulae (II) and (III).
                 R1 = halogenated or unsubstituted alkyl or -alkoxy with 1-15C, where
          one or more CH2-group is substituted by C=C, CH = CH, O, CO-O or O-CO, where O
          atoms are not directly connected;
```

X = alkyl, alkenyl, alkoxy or alkenyloxy (all halogenated) with 6C, F, Cl or CN;

L1, L2 = H or F; and

alkyl, alkyl1 = 1-7C alkyl.

An INDEPENDENT CLAIM is included for electro optical liquid crystal comprising (A).

USE - (A) is useful for electro-opticals (claimed).

ADVANTAGE - (A) exhibits favorable electrooptical characteristic and is stable to chemical, heat and light.

L8 ANSWER 24 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-566059 [58] WPIX <u>Full-text</u>
DNC C2005-171257 [58]
DNN N2005-464114 [58]
TI New crystalline cholesterol derivatives useful in liquid crystalline medium for liquid-crystal display element e.g. reflective or transflective liquid-crystal display element, and electro-optical display element
DC E15; L03; U11; U14
IN ***HECKMEIER M***; KIRSCH P; LUESSEM G; MERGNER T
PA (MERE-C) MERCK PATENT GMBH
CYC 2
PIA GB 2410745 A 20050810 (200558)* EN 71[0]
DE 102005001420 A1 20050825 (200560) DE
ADT GB 2410745 A GB 2004-28556 20041231; DE 102005001420 A1 DE 2005-102005001420 20050112
PRAI DE 2004-102004005838 20040206
AN 2005-566059 [58] WPIX <u>Full-text</u>
AB GB 2410745 A UPAB: 20051223

NOVELTY - Liquid crystalline cholesterol derivatives are new.

DETAILED DESCRIPTION - Liquid crystalline cholesterol of formula (I) are new.

-MG=-(-A14-Z13-)c-(-A13-Z12-)b-(-A12-Z11-)a-A11-R11;

R11=H, -B(OH)2-, -B(ORx)(ORy), halo, CN, SF5, NCS, or a linear or branched, optionally ***chiral*** 1-15C alkyl (optionally mono- or poly-substituted by CN, F, Cl, Br and/or I, and optionally having at least one -CH2- replaced by -O-, -S-, -SO2-, -CO-, -CO-O-, -O-CO-, -O-CO-O-, -CH=CH-, -CH=CF-, -CF=CF- or -Ctriple bondC-; such that the heteroatoms are not linked directly to one another);

Rx and Ry=1-8C alkanyl or alkenyl radical;

Rx+Ry=2-8C alkenyl bridge (optionally substituted by at least one 1-4C alkanyl);

A11-A14=1,4-bicyclo(2.2.2)octylene, piperidin-1,4-diyl, naphthylen-2,6-diyl, decahydronaphthalen-2,6-diyl, 1,2,3,4- tetrahydronaphthalen-2,6-diyl (all optionally substituted by F, Cl, CF3, CN, CH3, OCH3, OCHF2 and/or OCF3), trans-1,4-cyclohexylene (having at least one non-adjacent -CH2- group replaced by -O- and/or -S-), or 1,4-phenylene (having one or two CH groups optionally replaced by N; and optionally substituted by F, Cl, CF3, CN, CH3, OCH3, OCHF2 and/or OCF3);

Z11-Z13=-CH2O-, -OCH2-, -CO-O-, -O-CO-, -CF2O-, -OCF2-, -CF2CF2-, -CH2CF2-, -CF2CH2-, -CH2CH2-, -CH=CH-, -CH=CF-, -CF=CH-, -CF=CF-, -CF=CF-COO-, -O-CO-CF=CF-, -Ctriple bondC-, or a single bond;

a-c and n = 0 or 1.

INDEPENDENT CLAIMS are included for the following:

(1) a liquid-crystalline medium containing at least two liquid-crystalline components comprising at least one (I); and

(2) a reflective or transflective liquid-crystal, or electro-optical display element comprising the liquid-crystalline medium.

USE - In a liquid crystalline medium; useful for preparation of a liquid-crystal display elements e.g. reflective liquid-crystal display element, transflective liquid-crystal display element, and electro-optical display element (claimed) such as TN, STN, IPS and TFT displays.

ADVANTAGE - The compounds have improved stability to light, low-temperature, heat and electric fields, and elastic and/or dielectric properties. The compounds exhibit low birefringence (optical anisotropy) (Deltan), a range of dielectric anisotropy (Deltaepsilon) over negative, neutral, slightly positive and highly positive (preferably strongly positive), high clearing point, good solubility, high curing points, and an ability to form nematic phase with a broad range and not a smectic phase, as compared to the prior art compounds. Thus the compounds broaden the range of liquid-crystalline substances, suitable for formation of a wide range of liquid crystalline devices. In pure state, the compounds are colorless and form liquid-crystalline mesophases in a temperature range that is located for electro-optical use. The compounds further do not have a significant HTP (helical twisting point), in spite of large ***chiral*** cholesteryl group (having 9 asymmetric centers), both as a pure substance and in the liquid-crystalline mixture, which facilitates their use in mixtures that do not comprise a ***chiral*** dopant.

L8 ANSWER 25 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-114040 [13] WPIX Full-text
DNC C2005-038352 [13]
DNN N2005-098341 [13]
TI Liquid crystal medium useful for electrooptic purposes, especially displays, comprises 2-fluoro-1,4-diphenylbenzene derivatives
DC E14; L03; P81; U11; U14
IN DURMAZ E; ***HECKMEIER M***; MANABE A; POETSCH E; ***REIFFENRATH V***
PA (MERE-C) MERCK PATENT GMBH
CYC 107

PIA						
DE 102004030315	A1	20050127	(200513)*	DE	104[0]
WO 2005007775	A1	20050127	(200513)	DE	
EP 1646703	A1	20060419	(200627)	DE	
KR 2006041219	A	20060511	(200672)	KO	
CN 1823151	A	20060823	(200682)	ZH	

ADT DE 102004030315 A1 DE 2004-102004030315 20040623; EP 1646703 A1 EP 2004-740199 20040623; WO 2005007775 A1 WO 2004-EP6777 20040623; EP 1646703 A1 WO 2004-EP6777 20040623; KR 2006041219 A WO 2004-EP6777 20040623; KR 2006041219 A KR 2006-700619 20060110; CN 1823151 A CN 2004-80019888 20040623
FDT EP 1646703 A1 Based on WO 2005007775 A; KR 2006041219 A Based on WO 2005007775 A
PRAI DE 2003-10331490 20030711
AN 2005-114040 [13] WPIX Full-text
AB DE 102004030315 A1 UPAB: 20060426

NOVELTY - Liquid crystal medium based on a mixture of polar compounds with positive or negative dielectric anisotropy comprises one or more 2-fluoro-1,4-diphenylbenzene derivatives (I).

DETAILED DESCRIPTION - Liquid crystal medium based on a mixture of polar compounds with positive or negative dielectric anisotropy comprises one or more 2-fluoro-1,4-diphenylbenzene derivatives of formula (I):

R1, R2 = H or 1-12C alkyl, where alkyl is optionally monosubstituted with CN or CF3 or mono- or poly-substituted with halogen and optionally has one or more CH2 groups replaced by O, S, 1,3-cyclobutylene, CH=CH, ethynylene, CO, COO, OCO or OCOO.

An INDEPENDENT CLAIM is also included for electrooptic display devices comprising a liquid crystal medium as above

USE - The liquid crystal medium is useful for electrooptic purposes (claimed), especially in transmissive twisted nematic displays.

ADVANTAGE - (I) have a very low rotational viscosity and a relatively high optical anisotropy.

L8 ANSWER 26 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2004-582295 [57] WPIX Full-text
DNC C2004-212566 [57]
DNN N2004-460099 [57]
TI New liquid crystal and mesogenic compounds are used in liquid crystal media for use in displays, including reflective, transflective and electrooptical displays
DC E19; L03; P81; P85; U11
IN ***HECKMEIER M***; KIRSCH P; LENGES M
PA (MERE-C) MERCK PATENT GMBH
CYC 1
PIA DE 10357678 A1 20040812 (200457)* DE 35[0]
ADT DE 10357678 A1 DE 2003-10357678 20031210
PRAI DE 2003-10303637 20030130
AN 2004-582295 [57] WPIX Full-text
AB DE 10357678 A1 UPAB: 20050907

NOVELTY - New bridged compounds have 2 or more rings selected from trans-1,4-cyclohexylene, where non-adjacent methylene group(s) may be replaced by oxygen or sulfur, 1,4-(fluoro)phenylene, where 1 or 2 methine groups may be replaced by nitrogen, 1,4-bicyclo(2,2,2)-octylene, piperidin-1,4-diyl, naphth-2,6-diyl, deca- or 1,2,3,4-tetra-hydronaphth- 2,6-diyl or 1,4-cyclohexenylene.

DETAILED DESCRIPTION - Bridged compounds of formula (I) are new:

R1-(A1-Z1)m-(A2-Z2)n-A3-Z3-A4-R2 (I)

R1 = H, halogen or 1-15 C (halo)alkyl, optionally with substituted chain;

R2 = as R1 or -CN, -NCS, -SF5, -CF3, -CF2CF3, -CF2CF2CF3, -OCF3, -OCHF2, -CF2CH2CF3 or -OCH2CF2CHFCF3;

A1, A2, A3, A4 = ring (system);

Z1, Z2, Z3 = -O-, -CH2O-, -OCH2-, -CO-O-, -O-CO-, -CF2O-, -OCF2-, -CF2CF2-, -CH2CF2-, -CF2CH2-, -CH2CF2O-, -OCF2CH2-, -CH2CH2-, -CH=CH-, -CH=CF-, -CF=CH-, -CF=CF-, -CF=CF-COO-, -O-CO-CF=CF-, -CC- or a single bond; and

m, n = 0 or 1.

The full definitions are given in the DEFINITIONS (Full Definitions) Field.

An INDEPENDENT CLAIM is also included for liquid crystal (LC) medium with not less than 2 LC components, which contains at least one compound (I).

USE - Compounds (I) are used as component(s) in liquid crystal (LC) media (claimed). LC media containing not less than 2 LC components, including at least one compound (I), are used in LCDs and as dielectric in reflective or transflective LCDs and electrooptical displays, all of which are claimed per se. (I) are especially useful in displays of the twisted cell, guest-host, aligned phase deformation, electrically controlled birefringence, in-plane-switching (IPS) and dynamic scattering type and in media for twisted nematic (TN), IPS and particularly supertwist nematic (STN) and thin film transistor (TFT) displays. They are especially suitable for increasing the low temperature stability of polar LC mixtures, especially if low birefringence is also necessary. Optically active LC compounds (I) with branched R groups are useful as ***chiral*** dopants; and smectic compounds of this type are useful in ferroelectric materials.

ADVANTAGE - Compounds (I) are stable liquid crystal (LC) or mesogenic compounds with high dielectric anisotropy, a high clearing point and low rotational viscosity. (I) give LC media with a high voltage holding ratio. They have a very wide mesophase range; excellent miscibility with nematic base mixtures, especially at low temperature; a favorable ratio of rotational viscosity to clearing point; and good solubility. Pure (I) are colorless and

```
          form LC mesophases in a favorable temperature range for electrooptical
          applications. They are stable chemically, thermally and in light.


L8   ANSWER 27 OF 35  WPIX COPYRIGHT 2007      THE THOMSON CORP on STN
AN   2002-280573 [32]   WPIX  Full-text
DNC  C2002-082500 [32]
DNN  N2002-219156 [32]
TI   New chiral compound for e.g. liquid crystal display, adhesive,
     cosmetic and pharmaceutical compositions, diagnostics, decorative and
     security applications, and non-linear optics
DC   E19; L03; P81; U11; U14; V07
IN   HECKMEIER M; KIRSCH P; KRAUSE J; PAULUTH D; TANGERBECK A; TARUMI
     K; TAUGERBECK A
PA   (HECK-I) HECKMEIER M; (KIRS-I) KIRSCH P; (KRAU-I) KRAUSE J; (MERE-C) MERCK
     PATENT GMBH; (PAUL-I) PAULUTH D; (TANG-I) TANGERBECK A; (TARU-I) TARUMI K
CYC  96
PIA  WO 2002006196   A1 20020124 (200232)* EN  53[0]
     AU 2001066092   A  20020130 (200236)  EN
     EP 1299334      A1 20030409 (200325)  EN
     KR 2003022269   A  20030315 (200350)  KO
     US 20030175445  A1 20030918 (200362)  EN
     TW 538118       A  20030621 (200377)  ZH
     JP 2004504286   W  20040212 (200413)  JA  93
     US 7060331      B2 20060613 (200639)  EN
ADT  WO 2002006196 A1 WO 2001-EP7217 20010625; AU 2001066092 A AU 2001-66092
     20010625; EP 1299334 A1 EP 2001-943543 20010625; EP 1299334 A1 WO
     2001-EP7217 20010625; US 20030175445 A1 WO 2001-EP7217 20010625; JP
     2004504286 W WO 2001-EP7217 20010625; TW 538118 A TW 2001-115635 20010627;
     JP 2004504286 W JP 2002-512103 20010625; US 20030175445 A1 US 2003-332470
     20030109; KR 2003022269 A KR 2003-700358 20030110; US 7060331 B2 WO
     2001-EP7217 20010625; US 7060331 B2 US 2003-332470 20030109
FDT  AU 2001066092   A Based on WO 2002006196   A; EP 1299334      A1 Based on
     WO 2002006196   A; JP 2004504286   W Based on WO 2002006196   A; US
     7060331      B2 Based on WO 2002006196   A
PRAI EP 2000-115250         20000713
AN   2002-280573 [32]   WPIX  Full-text
AB    WO 2002006196 A1    UPAB: 20050525
       NOVELTY - A chiral compound for e.g. liquid crystal display, is new.
             DETAILED DESCRIPTION - A chiral compound of formula R1-X1-A1-(Z-A2)m-
      X2-R2 is new.
             R1, R2 = F, Cl, Br, CN, SCN, SF5, 2-30C alkyl optionally mono- or poly-
      substituted by F, Cl, Br, or CN, chiral group comprising aromatic or aliphatic
      ring(s) that may include fused or spirocyclic systems, and may contain
      heteroatoms, or a polymerizable group;
             X1, X2 = -CF2O-, -OCF2-, -CF2S-, -SCF2-, -CF2CH2-, -CH2CF2-, -CF2CF2-,
      -CF=CH-, -CH=CF-, -CF=CF-, or single bond;
             Z = -O-, -S-, -CO-, -COO-, -OCO-, -OCOO-, -CO-N(R3)-, -N(R3)-CO-, -
      OCH2-, -CH2O-, SCH2, CH2S-, -CF2O-, -OCF2-, -CF2S-, -SCF2-, -CH2CH2-, -CF2CH2-
      , -CF2CF2-, -CH=CH-, -CF=CH-, -CH=CF-, -CF=CF-, -Ctriple bondC-, -CH=CH-COO-,
      -OCO-CH=CH-, or single bond;
             R3 = H or 1-4C alkyl;
             A1, A2 = 1,4-phenylene having CH group(s) that can be replaced by
      N,1,4-cyclohexylene, and having 1 or 2 non-adjacent CH2 groups that can be
      replaced by O and S, 1,3-dioxolane-4,5-diyl, 1,4-cyclohexenylene, 1,4-bicyclo-
      (2,2,2)-octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl,
      decahydronaphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or
      indane-2,5-diyl; where all groups are optionally mono- or poly-substituted
      with halo, CN, NO2, or alkyl, alkoxy, alkylcarbonyl, or alkoxycarbonyl groups
      having 1-7 carbons, and where H atom(s) may be substituted by F or Cl;and
```

m = 1-5.

Non-adjacent CH2 groups in R1 and R2 may be replaced by -O-, -S-, -NH-, -N(CH3)-, -CO-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S-, -CH=CH-, or -Ctriple bondC- such that oxygen atoms are not directly linked. At least one of X1, X2, and Z is -CF2O-, -OCF2-, -CF2S-, -SCF2-, -CF2CH2-, -CH2CF2-, -CF2CF2-, -CF=CH-, -CH=CF-, or -CF=CF. At least one of R1 and R2 is a ***chiral*** group. INDEPENDENT CLAIMS are also included for:

(a) a liquid crystalline mixture comprising a ***chiral*** compound;

(b) ***chiral*** linear or crosslinked liquid crystalline polymer obtained by polymerizing a mixture containing the ***chiral*** compound;

(c) liquid crystal display comprising the liquid crystalline mixture;

(d) cholesteric liquid crystalline medium comprising a ***chiral*** component containing the ***chiral*** compound, and a nematic component containing nematic or nematogenic compound(s); and

(e) a surface stabilized cholesteric texture (SSCT) display comprising the cholesteric liquid crystalline medium.

USE - For liquid crystal display e.g. supertwisted nematic, twisted nematic, active matrix-twisted nematic, temperature compensation, ferroelectric, guest-host, phase change, SSCT, or polymer stabilized cholesteric texture displays; in active and passive optical elements e.g. polarizers, compensators, alignment layers, color filters, and holographic elements; in adhesive; synthetic resin with anisotropic mechanical properties; cosmetic and pharmaceutical compositions e.g. as ultraviolet filter; diagnostics; liquid crystal pigments; decorative and security applications; non-linear optics; optical information storage; or as ***chiral*** dopant (all claimed).

ADVANTAGE - The ***chiral*** compound exhibits good solubility in liquid crystalline mixtures, and is mesogenic or liquid crystalline. High twisting power (HTP) can be obtained by varying the ***chiral*** groups R1 and R2. When used as dopant, high amounts can be used to produce a high twist. The liquid crystal phase of the host mixture is less negatively influenced. Enantiomerically pure ***chiral*** compounds can be prepared from cheap, readily available starting materials. R and S enantiomers can be prepared, which allows the formation of a cholesteric phase with either a right or left-handed cholesteric helix. The availability of both helices enables the production of ***chiral*** films or coatings reflecting circularly polarized light of a single handedness.

L8 ANSWER 28 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2003-023970 [02] WPIX Full-text
DNC C2003-005880 [02]
DNN N2003-019031 [02]
TI Liquid crystal medium with improved property adaptable to practical use and liquid crystal display containing the medium
DC E19; L03; P81; U11; U14
IN BREMER M; ***HECKMEIER M***; ICHINOSE H; KIRSCH P; NAKAJIMA S; ***REIFFENRATH V***; SUGIYAMA Y; TANAKA Y
PA (MERE-C) MERCK PATENT GMBH
CYC 1
PIA JP 2002302673 A 20021018 (200302)* JA 21[0]
ADT JP 2002302673 A JP 2002-16527 20020125
PRAI EP 2001-101867 20010126
AN 2003-023970 [02] WPIX Full-text
AB JP 2002302673 A UPAB: 20050527

NOVELTY - Liquid crystal medium containing dielectrically positive component (II) and dielectrically negative component (I) has improved properties, including wide nematic phase range, low viscosity and proper optical anisotropy.

```
       DETAILED DESCRIPTION - Liquid crystal medium containing dielectrically
positive component of formula (II) and dielectrically negative component of
formula (I) has improved properties, including wide nematic phase range, low
viscosity and proper optical anisotropy.
       R1, R21, R22 = 1- 7 C alkyl, alkoxy, fluorinated alkyl, fluorinated
alkoxy, 2-7C alkenyl, alkenyloxy, alkoxyalkyl or fluorinated alkenyl;
       X1 = 1-4 C fluorinated alkyl or alkoxy;
       A1, A21 = cyclohexylene or cyclohexenylene;
       A22 = cyclohexylene, phenylene or 2,3-difluorophenylene;
       Z21, Z22 = -CH2CH2-, -COO-, trans-CH=CH-, trans-CF=CF-, -CH2O-, -CF2-
or single bond;
       L21, L22 = C-F or N; and
       m = 0 or 1.
       An INDEPENDENT CLAIM is included for a liquid crystal display,
especially active matrix display containing the claimed medium.
       USE - The liquid crystal medium is useful for liquid crystal display,
preferably addressed by active matrix, more preferably thin film transistor
matrix or plasma addressed liquid crystal display.
       ADVANTAGE - The liquid crystal medium exhibits proper ratio of
dielectric constant; eta parallel/eta perpendicular of at least 1.80, proper
phase range or proper optical anisotropy DELTAn of at least 0.09.


L8   ANSWER 29 OF 35  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
AN   2001-329885 [35]   WPIX  Full-text
DNC  C2001-101424 [35]
DNN  N2001-237432 [35]
TI   New liquid crystalline fluoro-, chloro-, cyano-, halo-alk(en)yl- and
     haloalkoxy-phenyl (hetero) alk(en)yl- and (hetero)alk(en)yl-(hetero)cyclyl-
     (di)fluorobenzoates are useful in medium for electrooptical purposes
DC   E19; L03; P81; P85; U11; U14; W05
IN   BINDER W; GOETZ A; GOTZ A; HECKMEIER M; KRAUSE J; POETSCH E;
     REIFFENRATH V; SCHULER B
PA   (BIND-I) BINDER W; (GOTZ-I) GOTZ A; (HECK-I) HECKMEIER M; (KRAU-I) KRAUSE
     J; (MERE-C) MERCK PATENT GMBH; (POET-I) POETSCH E; (REIF-I) REIFFENRATH V;
     (SCHU-I) SCHULER B
CYC  91
PIA  DE 19947954      A1 20010412 (200135)* DE  41[0]
     WO 2001025370    A1 20010412 (200135)  DE
     AU 2000077777    A  20010510 (200143)  EN
     KR 2002042860    A  20020607 (200278)  KO
     EP 1255799       A1 20021113 (200282)  DE
     JP 2003511390    W  20030325 (200330)  JA  75
     TW 507003        A  20021021 (200341)  ZH
     US 20050205843   A1 20050922 (200563)  EN
     EP 1255799       B1 20061102 (200672)  DE
ADT  DE 19947954 A1 DE 1999-19947954 19991006; AU 2000077777 A AU 2000-77777
     20000918; EP 1255799 A1 EP 2000-967700 20000918; WO 2001025370 A1 WO
     2000-EP9133 20000918; EP 1255799 A1 WO 2000-EP9133 20000918; JP 2003511390
     W WO 2000-EP9133 20000918; US 20050205843 A1 Div Ex WO 2000-EP9133
     20000918; TW 507003 A TW 2000-120480 20001002; JP 2003511390 W JP
     2001-528527 20000918; KR 2002042860 A KR 2002-704466 20020406; US
     20050205843 A1 Div Ex US 2002-89975 20020408; US 20050205843 A1 US
     2005-128314 20050513; EP 1255799 B1 EP 2000-967700 20000918; EP 1255799 B1
     WO 2000-EP9133 20000918
FDT  AU 2000077777    A Based on WO 2001025370    A; EP 1255799       A1 Based on
     WO 2001025370    A; JP 2003511390    W Based on WO 2001025370    A; EP
     1255799          B1 Based on WO 2001025370    A
PRAI DE 1999-19947954 19991006
AN   2001-329885 [35]   WPIX  Full-text
```

AB DE 19947954 A1 UPAB: 20060117

NOVELTY - Liquid crystalline 4-fluoro-, 4-chloro-, 4-cyano- and 4-(poly)halo-alk(en)yl- and -alkoxy-phenyl 4-(hetero)alk(en)yl- and 4-(4-(hetero)alk(en)yl-mono- and -di-(hetero)cyclyl)-2-fluoro- and -2,6-difluorobenzoates (I) are new.

DETAILED DESCRIPTION - Liquid crystalline 4-fluoro-, 4-chloro-, 4-cyano- and 4-(poly)halo-alk(en)yl- and -alkoxy-phenyl 4-(hetero)alk(en)yl- and 4-(4-(hetero)alk(en)yl-mono- and -di-(hetero)cyclyl)-2-fluoro- and -2,6-difluorobenzoates of formula (I) are new;

R = 1-15 carbon (C) alk(en)yl, optionally monosubstituted by cyano (CN) or trifluoromethyl (CF3) or at least monosubstituted by halogen, in which 1 or more methylene (CH2) groups may be replaced by oxygen (-O-), sulfur (-S-), -CC- or carboxy (-OC-O- or -O-CO-), without adjacent O atoms;

A1 = (a) 1,4-phenylene, in which 1 or 2 CH groups may be replaced by nitrogen (N), (b) 1,4-cyclohex(en)ylene, in which 1 or 2 non-adjacent CH2 groups may be replaced by -O- or -S-, or (c) a piperidin-1,4-diyl, 1,4-bicyclo(2,2,2)octylene or naphthalen-2,6-diyl groups and groups (a) and (b) may have halogen substituent(s);

Z1 = -CO-O-, -O-CO-, -CF2O, -OCF2-, -CH2O-, -OCH2-, -CH2CH2-, -C2F4-, -CH=CH-. -CC- or a single bond;

Y = fluorine (F), chlorine (Cl), CN or a mono- or polyhalogenated 1-15 C alk(en)yl or alkoxy group;

L = hydrogen (H) or F;

m = 0, 1 or 2

. INDEPENDENT CLAIMS are also included for (a) a liquid crystalline medium containing not less than 2 mesogenic compounds, which contain phenol ester(s) (I); (b) electrooptical liquid crystal displays containing the medium.

USE - The medium is used for electrooptical purposes (claimed), especially in matrix liquid crystal, twisted nematic and supertwisted nematic displays.

ADVANTAGE - The medium combines very high specific resistance and low threshold voltage and avoid drawbacks of existing media. (I) have a wide range of application. Depending on their substituents, they can be used as the basis for liquid crystal media or as additives to other media to modify the dielectric anisotropy and/or birefringence and/or to optimize the threshold voltage and/or viscosity. Pure (I) are colorless, form liquid crystalline mesophases in a temperature range suitable for electrooptical purposes, have a high clearing point and are stable chemically, thermally and towards light.

L8 ANSWER 30 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2000-424563 [37] WPIX Full-text
DNC C2000-128798 [37]
DNN N2000-316573 [37]
TI New partly fluorinated 4-(cyanotetrafluorosulfanyl)-phenyl or benzoate derivatives of (hetero)cyclic compounds useful in liquid media for displays and new 4-(cyanotetrafluorosulfanyl)-benzene derivatives
DC E13; E14; L03; P81; P85; U11; V07
IN *HECKMEIER M*; KIRSCH P; KRAUSE J
PA (MERE-C) MERCK PATENT GMBH
CYC 1
PIA DE 19958154 A1 20000615 (200037)* DE 33[0]
ADT DE 19958154 A1 DE 1999-19958154 19991203
PRAI DE 1998-19857197 19981211
AN 2000-424563 [37] WPIX Full-text
AB DE 19958154 A1 UPAB: 20050411

NOVELTY - Partly fluorinated 4-(cyanotetrafluorosulfanyl)-phenyl or benzoate derivatives (I) of (hetero)cyclic compounds are new.

DETAILED DESCRIPTION - Partly fluorinated 4-(cyanotetrafluorosulfanyl)-phenyl or -benzoate derivatives (I) of (hetero)cyclic compounds of formula (A; X = R1-(A1-Z1)m-A2-Z2-) are new.

R1 = hydrogen (H) or optionally substituted and/or modified 1-15 carbon (C) alk(en)yl;

A1, A2 = optionally substituted cycloaliphatic or (hetero)aromatic rings;

Z1, Z2 = a linking group or single bond;

m = 0, 1 or 2;

L1, L2 = H, fluorine (F) or chlorine (Cl).

The full definitions are given in the DEFINITIONS (Full Definitions) Field.

An INDEPENDENT CLAIM is also included for new 4-(cyanotetrafluorosulfanyl)-benzaldehydes, -anilines, -***phenols*** and -phenyl chlorides, bromides and iodides (II) of formula (A; X = -CHO, -NH2, -OH, -Cl, -Br or -I).

USE - Compounds (I) are used as components of liquid crystal (LC) media, preferably with not less than 2 LC components; and the LC media are used in electro-optical displays, especially as dielectric (all claimed). They are useful in LC and electro-optical displays, especially displays of the twisted cell, guest-host, aligned phase deformation, or dynamic scattering type. (I) with suitable R1 groups are useful for preparing LC polymers or polycondensates; optically active (I) with branched R1 groups are useful as ***chiral*** dopants; smectic compounds of this type are useful in ferroelectric materials; and (I) with SA phases are useful for thermally addressed displays. Compounds (II) are intermediates obtained in the preparation of (I).

ADVANTAGE - (I) are stable LC or mesogenic compounds with relatively low viscosity and high dielectric anisotropy. They give stable LC media with a wide mesophase range, favorable birefringence and dielectric anisotropy and very good low temperature characteristics.

L8 ANSWER 31 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2000-340877 [30] WPIX Full-text
DNC C2000-103628 [30]
DNN N2000-255970 [30]
TI Liquid crystal medium for electro-optical displays based on polar compounds with positive dielectric anisotropy, contains compounds with linked cyclohexane rings and a terminal difluoro-cyclobutane group
DC E19; L03; P81; P85; U11; U14; V07
IN BINDER W; ***HECKMEIER M***; KRAUSE J; POETSCH E; REIFENRATH V; ***REIFFENRATH V***; SCHULER B; WERNER B
PA (MERE-C) MERCK PATENT GMBH
CYC 3
PIA DE 19945889 A1 20000427 (200030)* DE 19[0]
JP 2000109840 A 20000418 (200030) JA 22
US 6146719 A 20001114 (200060) EN
ADT DE 19945889 A1 DE 1999-19945889 19990924; US 6146719 A US 1999-407940 19990925; JP 2000109840 A JP 1999-276095 19990929
PRAI DE 1998-19844498 19980929
AN 2000-340877 [30] WPIX Full-text
AB DE 19945889 A1 UPAB: 20050411

NOVELTY - A liquid crystal medium based on polar compounds with positive dielectric anisotropy contains one or more compounds with one or two trans-1,4-cyclohexylene group(s) and a terminal 3,3-difluorocyclobut-1-yl group, possibly connected by one or two spiro-linked cyclobutane-1,3-diyl groups.

DETAILED DESCRIPTION - A liquid crystal (LC) medium based on a mixture of polar compounds with positive dielectric anisotropy contains one or more compounds of formula (I).

R = H, 1-15C alkyl or 2-15C alkenyl (optionally substituted with one CN or CF3 group or at least one halogen atom and optionally with one or more CH2 groups replaced by -O-, -S-, cyclobutane-1,3-diyl, -CO-, -COO-, -OCO- or -OCOO- with no direct bond between oxygen atoms);

m = 0 or 1;
n = 0, 1 or 2; and
(m+n) = 1, 2 or 3

An INDEPENDENT CLAIM is also included for electro-optical LC displays containing an LC medium as described above.

USE - For electro-optical applications (claimed). Preferred applications are in TN, STN or matrix liquid crystal displays.

ADVANTAGE - Colorless compounds with good chemical, thermal and light stability combined with suitable liquid crystal (LC) properties, which enable the production of LC media with very high specific resistance, low threshold voltage and low optical anisotropy.

Member(0002)
ABEQ JP 2000109840 A UPAB 20050411

NOVELTY - A liquid crystal medium based on polar compounds with positive dielectric anisotropy contains one or more compounds with one or two trans-1,4-cyclohexylene group(s) and a terminal 3,3-difluorocyclobut-1-yl group, possibly connected by one or two spiro-linked cyclobutane-1,3-diyl groups.

DETAILED DESCRIPTION - A liquid crystal (LC) medium based on a mixture of polar compounds with positive dielectric anisotropy contains one or more compounds of formula (I).

R = H, 1-15C alkyl or 2-15C alkenyl (optionally substituted with one CN or CF3 group or at least one halogen atom and optionally with one or more CH2 groups replaced by -O-, -S-, cyclobutane-1,3-diyl, -CO-, -COO-, -OCO- or -OCOO- with no direct bond between oxygen atoms);

m = 0 or 1;
n = 0, 1 or 2; and
(m+n) = 1, 2 or 3

An INDEPENDENT CLAIM is also included for electro-optical LC displays containing an LC medium as described above.

USE - For electro-optical applications (claimed). Preferred applications are in TN, STN or matrix liquid crystal displays.

ADVANTAGE - Colorless compounds with good chemical, thermal and light stability combined with suitable liquid crystal (LC) properties, which enable the production of LC media with very high specific resistance, low threshold voltage and low optical anisotropy.

Member(0003)
ABEQ US 6146719 A UPAB 20050411

NOVELTY - A liquid crystal medium based on polar compounds with positive dielectric anisotropy contains one or more compounds with one or two trans-1,4-cyclohexylene group(s) and a terminal 3,3-difluorocyclobut-1-yl group, possibly connected by one or two spiro-linked cyclobutane-1,3-diyl groups.

DETAILED DESCRIPTION - A liquid crystal (LC) medium based on a mixture of polar compounds with positive dielectric anisotropy contains one or more compounds of formula (I).

R = H, 1-15C alkyl or 2-15C alkenyl (optionally substituted with one CN or CF3 group or at least one halogen atom and optionally with one or more CH2 groups replaced by -O-, -S-, cyclobutane-1,3-diyl, -CO-, -COO-, -OCO- or -OCOO- with no direct bond between oxygen atoms);

m = 0 or 1;
n = 0, 1 or 2; and
(m+n) = 1, 2 or 3

```
         An INDEPENDENT CLAIM is also included for electro-optical LC
     displays containing an LC medium as described above.
         USE - For electro-optical applications (claimed). Preferred
     applications are in TN, STN or matrix liquid crystal displays.
         ADVANTAGE - Colorless compounds with good chemical, thermal and
     light stability combined with suitable liquid crystal (LC) properties,
     which enable the production of LC media with very high specific
     resistance, low threshold voltage and low optical anisotropy.

L8   ANSWER 32 OF 35  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
AN   2000-483793 [43]   WPIX  Full-text
DNC  C2000-145807 [43]
DNN  N2000-359518 [43]
TI   Liquid crystal composition, useful in display devices, comprises mixture
     with positive dielectric anisotropy and contains specific fluorinated
     cyclohexane derivatives
DC   A85; E19; L03; P55; P81; P85; U11; U14; V07
IN   HECKMEIER M; HECKMEIR M; KIRSCH P; KRISCH P; REIFFENRATH
     V; SCHULER B; TARUMI K
PA   (HECK-I) HECKMEIER M; (HECK-I) HECKMEIR M; (KIRS-I) KIRSCH P; (MERE-C)
     MERCK PATENT GMBH; (REIF-I) REIFFENRATH V; (SCHU-I) SCHULER B; (TARU-I)
     TARUMI K
CYC  86
PIA  DE 19859421      A1 20000629 (200043)* DE  29[0]
     WO 2000037586    A1 20000629 (200043)  DE
     AU 2000026608    A  20000712 (200048)  EN
     EP 1144548       A1 20011017 (200169)  DE
     KR 2001099869    A  20011109 (200229)  KO
     JP 2002533526    W  20021008 (200281)  JA  84
     EP 1144548       B1 20040825 (200456)  DE
     US 6793983       B1 20040921 (200462)  EN
     DE 59910363      G  20040930 (200465)  DE
     US 20040245501   A1 20041209 (200481)  EN
     US 20040251447   A1 20041216 (200501)  EN
     US 20050006437   A1 20050113 (200506)  EN
     US 20050035329   A1 20050217 (200514)  EN
     US 20050035330   A1 20050217 (200514)  EN
     US 6951669       B2 20051004 (200565)  EN
     US 6953610       B2 20051011 (200567)  EN
     US 7026020       B2 20060411 (200626)  EN
     US 7033654       B2 20060425 (200628)  EN
     US 7081280       B2 20060725 (200649)  EN
ADT  DE 19859421 A1 DE 1998-19859421 19981222; DE 59910363 G DE 1999-510363
     19991214; EP 1144548 A1 EP 1999-968797 19991214; EP 1144548 B1 EP
     1999-968797 19991214; DE 59910363 G EP 1999-968797 19991214; US 6951669 B2
     Div Ex US 1999-868866 19991214; US 6953610 B2 Div Ex US 1999-868866
     19991214; US 7026020 B2 Div Ex US 1999-868866 19991214; US 7033654 B2 Div
     Ex US 1999-868866 19991214; WO 2000037586 A1 WO 1999-EP9919 19991214; EP
     1144548 A1 WO 1999-EP9919 19991214; JP 2002533526 W WO 1999-EP9919
     19991214; EP 1144548 B1 WO 1999-EP9919 19991214; US 6793983 B1 WO
     1999-EP9919 19991214; DE 59910363 G WO 1999-EP9919 19991214; US
     20050035329 A1 Div Ex WO 1999-EP9919 19991214; US 20050035330 A1 Div Ex WO
     1999-EP9919 19991214; US 6951669 B2 Div Ex WO 1999-EP9919 19991214; US
     6953610 B2 Div Ex WO 1999-EP9919 19991214; US 7026020 B2 Div Ex WO
     1999-EP9919 19991214; US 7033654 B2 Div Ex WO 1999-EP9919 19991214; AU
     2000026608 A AU 2000-26608 19991214; JP 2002533526 W JP 2000-589645
     19991214; KR 2001099869 A KR 2001-707855 20010621; US 6793983 B1 US
     2001-868866 20010621; US 20050006437 A1 Cont of US 2001-868866 20010621;
     US 20050035329 A1 Div Ex US 2001-868866 20010621; US 20050035330 A1 Div Ex
     US 2001-868866 20010621; US 20040245501 A1 Div Ex US 2004-868886 20040617;
```

US 20040251447 A1 US 2004-882190 20040702; US 7026020 B2 US 2004-882190 20040702; US 20050006437 A1 US 2004-882191 20040702; US 20040245501 A1 US 2004-882192 20040702; US 6951669 B2 US 2004-882192 20040702; US 20050035330 A1 US 2004-882308 20040702; US 6953610 B2 US 2004-882308 20040702; US 20050035329 A1 US 2004-882309 20040702; US 7033654 B2 US 2004-882309 20040702; US 7081280 B2 Cont of US 1999-868866 19991214; US 7081280 B2 Cont of WO 1999-EP9919 19991214; US 7081280 B2 US 2004-882191 20040702

FDT DE 59910363 G Based on EP 1144548 A; US 20050006437 A1 Cont of US 6793983 B; US 20050035329 A1 Div ex US 6793983 B; US 20050035330 A1 Div ex US 6793983 B; US 6951669 B2 Div ex US 6793983 B; US 6953610 B2 Div ex US 6793983 B; US 7026020 B2 Div ex US 6793983 B; US 7033654 B2 Div ex US 6793983 B; AU 2000026608 A Based on WO 2000037586 A; EP 1144548 A1 Based on WO 2000037586 A; JP 2002533526 W Based on WO 2000037586 A; EP 1144548 B1 Based on WO 2000037586 A; US 6793983 B1 Based on WO 2000037586 A; DE 59910363 G Based on WO 2000037586 A; US 7081280 B2 Cont of US 6793983 B

PRAI DE 1998-19859421 19981222

AN 2000-483793 [43] WPIX Full-text

AB DE 19859421 A1 UPAB: 20060421

NOVELTY - Liquid crystal (LC) medium (A), based on one or more polar compounds with positive dielectric anisotropy, also includes a compound (I) with at least two cyclohexane, or derivative, rings and includes a haloalkyl or haloalkoxy substituent.

DETAILED DESCRIPTION - (I) has the following formula.

R = hydrogen, 1-15C alkyl substituted by one cyano or trifluoromethyl, or by one or more halo, optionally with one or more methylenes replaced by oxygen, sulfur, 1,3-cyclobutylene, CO, COO, OCO or OCOO, provided oxygen atoms are not linked directly to each other;

A = trans-1,4-cyclohexylene (optionally with one or two methylene replaced by oxygen and/or sulfur) or cyclohexylenylene;

Y = 1-6C halogenated alkyl or alkoxy;

Z = CH2O, OCH2, CH=CH, CF2CF2 or single bond;

n = 1 or 2.

An INDEPENDENT CLAIM is also included for an electro-optical LC devices containing (A).

USE - (A) are used in electro-optical devices (displays), particularly in matrix LC cells (most preferred), or twisted nematic or supertwisted nematic cells. (I) that contain a polymerizable group are also used to make polymeric liquid crystal materials.

ADVANTAGE - (I) has very high specific resistance, low threshold voltage and low double refraction, also a broad nematic range (particularly at low temperature) and good switchability at very low temperatures. (I) have good chemical, thermal and light stability and where they contain a chiral substituent are also suitable as chiral dopants.

Member(0002)

ABEQ WO 2000037586 A1 UPAB 20060421

NOVELTY - Liquid crystal (LC) medium (A), based on one or more polar compounds with positive dielectric anisotropy, also includes a compound (I) with at least two cyclohexane, or derivative, rings and includes a haloalkyl or haloalkoxy substituent.

DETAILED DESCRIPTION - (I) has the following formula.

R = hydrogen, 1-15C alkyl substituted by one cyano or trifluoromethyl, or by one or more halo, optionally with one or more methylenes replaced by oxygen, sulfur, 1,3-cyclobutylene, CO, COO, OCO or OCOO, provided oxygen atoms are not linked directly to each other;

A = trans-1,4-cyclohexylene (optionally with one or two methylene

```
         replaced by oxygen and/or sulfur) or cyclohexylenylene;
               Y = 1-6C halogenated alkyl or alkoxy;
               Z = CH2O, OCH2, CH=CH, CF2CF2 or single bond;
               n = 1 or 2.
               An INDEPENDENT CLAIM is also included for an electro-optical LC
          devices containing (A).
               USE - (A) are used in electro-optical devices (displays),
          particularly in matrix LC cells (most preferred), or twisted nematic or
          supertwisted nematic cells. (I) that contain a polymerizable group are
          also used to make polymeric liquid crystal materials.
               ADVANTAGE - (I) has very high specific resistance, low threshold
          voltage and low double refraction, also a broad nematic range
          (particularly at low temperature) and good switchability at very low
          temperatures. (I) have good chemical, thermal and light stability and
          where they contain a chiral substituent are also suitable as chiral
          dopants.

L8   ANSWER 33 OF 35  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
AN   1999-432471 [37]   WPIX* Full-text
DNC  C1999-127681 [37]
DNN  N1999-322011 [37]
TI   Liquid-crystal mixture used in the adjustment of the resistance of liquid
     crystal compositions
DC   E13; E14; L03; P81; P85; U11; V07
IN   DARIUS M; HECKMEIER M; KIRSCH P; REIFFENRATH V; REIGER
     B; REUTER M; RIEGER B; TARUMI K
PA   (MERE-C) MERCK PATENT GMBH
CYC  6
PIA  GB 2334031       A  19990811 (199937)* EN  78[0]
     DE 19903746      A1 19990805 (199937)  DE
     JP 11302652      A  19991102 (200003)  JA  30
     KR 99072364      A  19990927 (200048)  KO  [0]
     US 6139925       A  20001031 (200057)  EN
     US 20020084444   A1 20020704 (200247)  EN
     GB 2334031       B  20030611 (200339)  EN
     TW 239997        B1 20050921 (200677)  ZH
ADT  GB 2334031 A GB 1999-2542 19990204; DE 19903746 A1 DE 1999-19903746
     19990130; KR 99072364 A KR 1999-3333 19990202; US 6139925 A US 1999-243803
     19990203; JP 11302652 A JP 1999-27065 19990204; US 20020084444 A1 Cont of
     US 2000-658112 20000908; US 20020084444 A1 US 2001-907654 20010719; TW
     239997 B1 TW 1999-101509 19990201
PRAI DE 1998-19851805      19981111
     DE 1998-19804300      19980204
     DE 1998-19805912      19980213
     DE 1999-19902606      19990123
AN   1999-432471 [37]   WPIX  Full-text
AB    GB 2334031 A   UPAB: 20060503
       NOVELTY - The liquid-crystal mixture has a certain specific resistance and
      comprises an acidic compound.
             DETAILED DESCRIPTION - A liquid-crystal mixture has a certain specific
      resistance and comprises an acidic compound in a concentration of 10 ppm to
      less than 10%.
             An INDEPENDENT CLAIM is also included for a method of adjusting the
      specific resistance of the liquid-crystal mixture comprising adding an acidic
      compound.
             USE - The liquid-crystal mixture is used in STN, AMD, TN or IPS liquid
      crystal displays.
             ADVANTAGE - The liquid-crystal displays have prespecified specific
      resistance values and the specific resistance of the liquid-crystals can be
      adjusted reproducibly.
```

```
L3   ANSWER 34 OF 35  WPIX COPYRIGHT 2007      THE THOMSON CORP on STN
AN   1999-406387 [35]   WPIX  Full-text
DNC  C1999-120257 [35]
DNN  N1999-303051 [35]
TI   Difluorobenzofuran and dihydrodifluorobenzofuran derivatives of linear
     (poly)cyclic compounds
DC   E13; L03; P85; U11; V07
IN   BREMER M; REIFFENRATH V; TARUMI K
PA   (MERE-C) MERCK PATENT GMBH
CYC  1
PIA  DE 19900517     A1 19990722 (199935)* DE  33[0]
ADT  DE 19900517 A1 DE 1999-19900517 19990108
PRAI DE 1998-19801817      19980119
AN   1999-406387 [35]   WPIX  Full-text
AB    DE 19900517 A1    UPAB: 20060503
      NOVELTY - 6,7-Difluorobenzofuran and 2,3-dihydro-6,7-difluorobenzofuran
     derivatives of linear (poly)cyclic compounds are new.
            DETAILED DESCRIPTION - 6,7-Difluorobenzofuran and 2,3-dihydro-6,7-
     difluorobenzofuran derivatives of linear (poly)cyclic compounds, of formula
     (I), are new.
            W = a 2,3-dihydro-6,7-difluorobenzofuran-7-yl group of formula (IIA) or
     a 6,7-difluorobenzofuran-5-yl group of formula (IIB);
            R1 = H, 1-12C alkyl or 2-12C alkenyl, optionally mono-substituted by
     cyano (CN) or trifluoromethyl (CF3), in which methylene (CH2) group(s) may be
     replaced by groups of the formulae -O-, -S-, -CO-, -CO-O-, -O-CO- or -O-CO-O-
     without directly linked hetero-atoms;
            R2 = H or 1-8C alkyl;
            A1, A2 = (a) trans-1,4-cyclohexylene (Cyc), in which non-adjacent CH2
     group(s) may be replaced by -O- and/or -S-; (b) 1,4-cyclohexenylene; (c) 1,4-
     phenylene (Phe), in which 1 or 2 CH groups may be replaced by N; or (d) 1,4-
     bicyclo(2,2,2)-octylene, piperidin-1,4-diyl, naphthalen-2,6-diyl,
     decahydronaphthalen-2,6-diyl or 1,2,3,4- tetrahydronaphthalen-2,6-diyl; and
     groups (a), (b) and (c) may be substituted by CN, Cl or (F);
            Z1, Z2 = -CO-O-, -O-CO-, -CH2O-, -O-CH2-, CH2CH2-, CH=CH-, -C triple
     bond C- or a single bond; and
            n = 0, 1 or 2.
            USE - Compounds (I) are used as components of liquid crystal (LC)
     media; and LC media containing at least 2 LC components, including at least 1
     compound (I), are used in LC displays and as dielectrics in electro-optical
     displays (all claimed). (I) are especially useful in displays of the twisted
     cell, guest-host, deformation of aligned phase, electrically controlled
     birefringence or dynamic scattering type and are also useful for producing
     chiral tilted smectic LC phases with ferroelectric properties. Optically
     active LC compounds (I) with branched R groups are useful as chiral dopants.
            ADVANTAGE - (I) are stable LC or mesogenic compounds and give stable LC
     media. They have high thermal stability and a good holding ratio and also
     strongly negative dielectric anisotropy, medium to very low birefringence and
     a good phase ratio.


L8   ANSWER 35 OF 35  WPIX COPYRIGHT 2007      THE THOMSON CORP on STN
AN   1998-262655 [24]   WPIX  Full-text
DNC  C1998-081600 [24]
DNN  N1998-207081 [24]
TI   Chiral dopants for liquid crystal media  - comprise ether
     derivatives of e.g. substituted phenol or cyclohexanol compounds
     and chiral alcohol compounds with alkynyl or alkenyl groups
DC   E19; L03; P81; P85; U11; U14; V07
```

```
IN   REIFFENRATH V; WEBER G
PA   (MERE-C) MERCK PATENT GMBH
CYC  3
PIA  DE 19746289      A1 19980507 (199824)* DE  51[0]
     JP 10158652      A  19980616 (199834)  JA  46
     US 6056893       A  20000502 (200029)  EN
ADT  DE 19746289 A1 DE 1997-19746289 19971020; US 6056893 A US 1997-961559
     19971030; JP 10158652 A JP 1997-314679 19971031
PRAI DE 1996-19644043 19961031
AN   1998-262655 [24]    WPIX  Full-text
AB    DE 19746289 A1   UPAB: 20050521
      Dopants of formula (I) are claimed: R1-(-A1-Z1-)n-A2-W (I)
      -O-C(X)-R9 (W)
      W = a group of formula (W); X = -C≡C-Y or -CH=CH-Y; Y = (a) H, 1-15C alkyl or
      alkenyl (optionally substituted with one CN or CF3 group or at least one
      halogen atom and optionally with one or more CH2 groups replaced by -O-, -CO-
      or -COO- groups, with no direct links between hetero atoms), or (b) a
      phenylene (sic) group which may be substituted with CN, Cl, F or with 1-8C
      alkyl, alkenyl or alkoxy (in which one or more H atoms may also be replaced by
      F), and in which one or two CH2 groups may be replaced by N; Ra = linear 1-15C
      alkyl; R1 = as for Y (a) but with CH2-replacing groups extended to O, S, CO,
      COO. OCO or OCOO; A1, A2 = (a) trans-1,4-cyclohexylene (optionally with one or
      more non-adjacent CH2 groups replaced by O and/or S), (b) 1,4-cyclohexenyl,
      (c) 1,4-phenylene (optionally with one or two CH2 groups replaced by N), or
      (d) 1,4-bicyclo[2.2.2]octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl or
      its decahydro- or 1,2 ,3,4-tetrahydro- derivatives, and in which groups (a),
      (b) and (c) may also be substituted with CN, Cl, F or 1-5C alkyl or alkenyl;
      Z1 = -COO-, -OCO-, -CH2O-, -OCH2-, -CH2CH2-, -CH=CH-, -C≡C- or a single bond;
      n = 0, 1, 2 or 3; and in which, if A2 = unsubstituted 1,4-phenylene and X = -
      C≡C-H, A1 cannot be 1,4-phenylene or phenylene with one or two CH2 replaced by
      N. Also claimed are (i) liquid crystal (LC) media containing at least one
      dopant (I), and (ii) electro-optical displays containing these LC media.
            USE - As dopants in nematic LC media, to adapt the cholesteric pitch of
      the medium to the requirements of different applications.
            ADVANTAGE - The addition of even small amounts of (I) to tilted smectic
      LC phases produces a marked twist in the cholesteric phase, and will also
      compensate the pitch of another dopant. Pure (I) are colourless compounds with
      good chemical, thermal and light stability, often with the ability to form LC
      mesophases in a temperature range suitable for electro-optical applications.


Member(0002)
ABEQ JP 10158652 A   UPAB 20050521
     Dopants of formula (I) are claimed:
     R1-(-A1-Z1-)n-A2-W (I)
     -O-C(X)-R9 (W)
     W = a group of formula (W); X = -C≡C-Y or -CH=CH-Y; Y = (a) H, 1-15C
     alkyl or alkenyl (optionally substituted with one CN or CF3 group or at
     least one halogen atom and optionally with one or more CH2 groups replaced
     by -O-, -CO- or -COO- groups, with no direct links between hetero atoms),
     or (b) a phenylene (sic) group which may be substituted with CN, Cl, F or
     with 1-8C alkyl, alkenyl or alkoxy (in which one or more H atoms may also
     be replaced by F), and in which one or two CH2 groups may be replaced by
     N; Ra = linear 1-15C alkyl; R1 = as for Y (a) but with CH2-replacing
     groups extended to O, S, CO, COO. OCO or OCOO; A1, A2 = (a)
     trans-1,4-cyclohexylene (optionally with one or more non-adjacent CH2
     groups replaced by O and/or S), (b) 1,4-cyclohexenyl, (c) 1,4-phenylene
     (optionally with one or two CH2 groups replaced by N), or (d)
     1,4-bicyclo[2.2.2]octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl or
```

its decahydro- or 1,2 ,3,4-tetrahydro- derivatives, and in which groups (a), (b) and (c) may also be substituted with CN, Cl, F or 1-5C alkyl or alkenyl; Z1 = -COO-, -OCO-, -CH2O-, -OCH2-, -CH2CH2-, -CH=CH-, -C≡C- or a single bond; n = 0, 1, 2 or 3; and in which, if A2 = unsubstituted 1,4-phenylene and X = -C≡C-H, A1 cannot be 1,4-phenylene or phenylene with one or two CH2 replaced by N. Also claimed are (i) liquid crystal (LC) media containing at least one dopant (I), and (ii) electro-optical displays containing these LC media.

USE - As dopants in nematic LC media, to adapt the cholesteric pitch of the medium to the requirements of different applications.

ADVANTAGE - The addition of even small amounts of (I) to tilted smectic LC phases produces a marked twist in the cholesteric phase, and will also compensate the pitch of another dopant. Pure (I) are colourless compounds with good chemical, thermal and light stability, often with the ability to form LC mesophases in a temperature range suitable for electro-optical applications.

Member(0003)
ABEQ US 6056893 A UPAB 20050521

Dopants of formula (I) are claimed:
R1-(-A1-Z1-)n-A2-W (I)
-O-C(X)-R9 (W)

W = a group of formula (W); X = -C≡C-Y or -CH=CH-Y; Y = (a) H, 1-15C alkyl or alkenyl (optionally substituted with one CN or CF3 group or at least one halogen atom and optionally with one or more CH2 groups replaced by -O-, -CO- or -COO- groups, with no direct links between hetero atoms), or (b) a phenylene (sic) group which may be substituted with CN, Cl, F or with 1-8C alkyl, alkenyl or alkoxy (in which one or more H atoms may also be replaced by F), and in which one or two CH2 groups may be replaced by N; Ra = linear 1-15C alkyl; R1 = as for Y (a) but with CH2-replacing groups extended to O, S, CO, COO. OCO or OCOO; A1, A2 = (a) trans-1,4-cyclohexylene (optionally with one or more non-adjacent CH2 groups replaced by O and/or S), (b) 1,4-cyclohexenyl, (c) 1,4-phenylene (optionally with one or two CH2 groups replaced by N), or (d) 1,4-bicyclo[2.2.2]octylene, piperidine-1,4-diyl, naphthalene-2,6-diyl or its decahydro- or 1,2 ,3,4-tetrahydro- derivatives, and in which groups (a), (b) and (c) may also be substituted with CN, Cl, F or 1-5C alkyl or alkenyl; Z1 = -COO-, -OCO-, -CH2O-, -OCH2-, -CH2CH2-, -CH=CH-, -C≡C- or a single bond; n = 0, 1, 2 or 3; and in which, if A2 = unsubstituted 1,4-phenylene and X = -C≡C-H, A1 cannot be 1,4-phenylene or phenylene with one or two CH2 replaced by N. Also claimed are (i) liquid crystal (LC) media containing at least one dopant (I), and (ii) electro-optical displays containing these LC media.

USE - As dopants in nematic LC media, to adapt the cholesteric pitch of the medium to the requirements of different applications.

ADVANTAGE - The addition of even small amounts of (I) to tilted smectic LC phases produces a marked twist in the cholesteric phase, and will also compensate the pitch of another dopant. Pure (I) are colourless compounds with good chemical, thermal and light stability, often with the ability to form LC mesophases in a temperature range suitable for electro-optical applications.